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TRAINING

VOL. I.

—
1931

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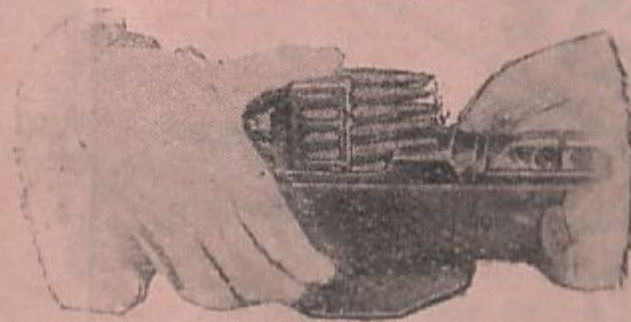
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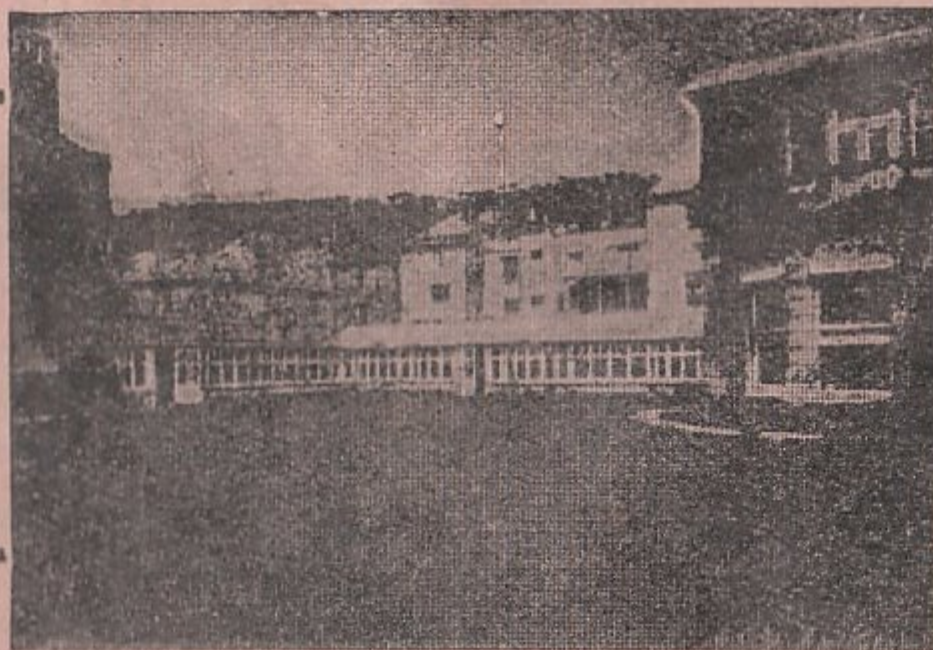
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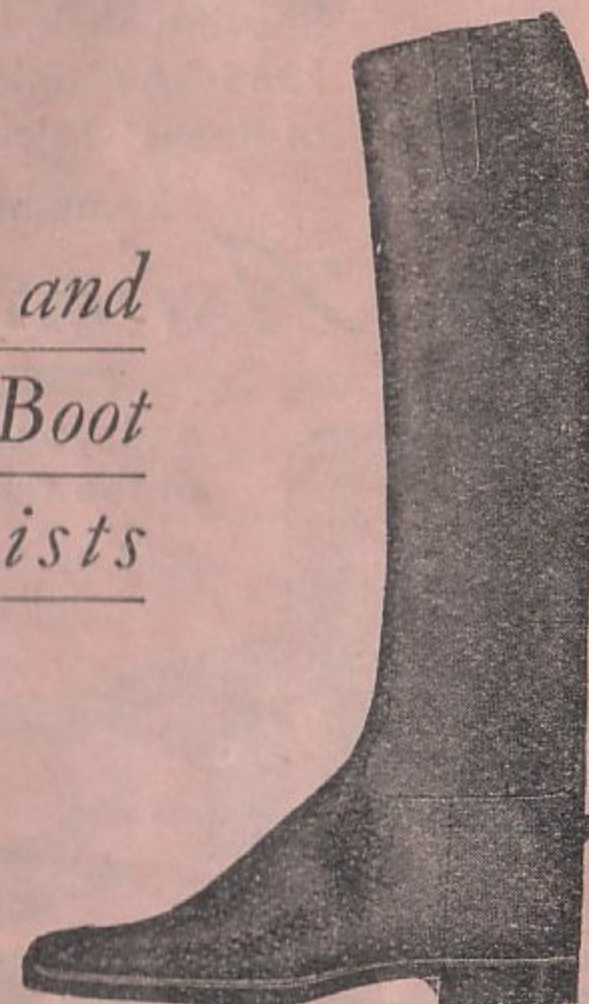
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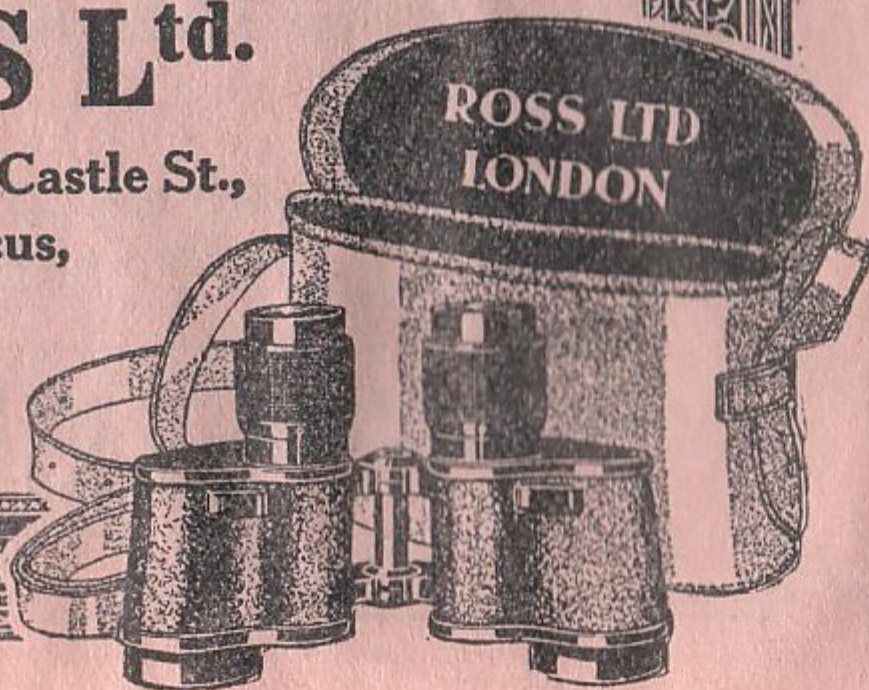
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SMALL ARMS TRAINING

VOLUME I

GENERAL, RIFLE, BAYONET & REVOLVER

1931

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SMALL ARMS TRAINING

VOLUME I

GENERAL, RIFLE, BAYONET AND REVOLVER

1930

CHAPTER I

PRINCIPLES AND SYSTEM OF TRAINING

1. General

1. Every minor tactical operation involves the use of weapons, ground and formations. In battle they are interdependent and in training they must be dealt with accordingly. This manual lays down the method of training the man individually in the use of weapons and ground, and the sub-unit commander in direction and control of fire. It consists of five volumes arranged as follows :—

Volume I.

- i. General principles and subjects common to all small arms.
- ii. Rifle and bayonet.
- iii. Revolver.

Volume II.

- i. Lewis gun (ground).
- ii. Grenades.
- iii. Small arms anti-aircraft training.

Volume III.

·303-inch Vickers machine gun.*

Volume IV.

Conduct of range courses; battle practices, and demonstrations; testing arms.

Volume V.

Range regulations and description of targets and appliances.

2. Where necessary "regiment," "squadron," "troop" or "battery," etc., should be read for "battalion," "company," and "platoon."

3. Four conditions are essential to the production of effective fire from small arms in battle:—

- i. A high standard of individual skill in the use of weapons and in judging distance or range-taking.
- ii. The co-operation of skilled individuals to form an effective fire unit under a leader.
- iii. Ability on the part of fire unit commanders to control the fire of their units.
- iv. Ability on the part of platoon and higher commanders to direct fire to the best advantage.

* Throughout the volumes of this manual the words "Vickers machine gun" will be taken to refer to the ·303-inch Vickers machine gun, Mark I.

4. The object of weapon training, therefore, is:—

- i. To make the man proficient in handling and firing his weapon so as to give him confidence in it and in his capacity to use it effectively in battle.
- ii. To train men to work together in a fire unit under a commander.
- iii. To ensure that commanders are competent to train their men and are themselves proficient in fire control.
- iv. To provide instructors who are capable of producing i (see Sec. 9, Vol. IV, 1931), ii and iii.

5. A fully qualified instructor must be able:—

- i. To train recruits or men with no knowledge of a particular weapon.
- ii. To exercise trained men.
- iii. To train junior commanders in fire direction and control.
- iv. To train officers, warrant officers, and N.C.Os. to be instructors.

Unit N.C.O. instructors will not normally be called upon to carry out iii. and iv. in the case of the Vickers machine gun.

6. No individual can be considered fully trained unless he is able to use his weapon efficiently when wearing a gas respirator. To ensure this, frequent practice is necessary.

2. Organization of weapon training

1. *Depots.*—The recruit is taught to handle the rifle and fires a limited number of practices on the open or

30-yards range. In the infantry, some preliminary instruction in the light automatic is also included. No instruction in the Vickers machine gun is given. The infantry depot cadre is responsible for the training of depot instructors.

2. Battalions.—

- i. In the battalion, the section commander will exercise his own men, under the direct supervision of the platoon commander. The company commander will organize and supervise generally.
- ii. The rifle company commander is responsible for the further training of men in the light automatic on posting from the depot and for their instruction in the grenade and revolver.

In a rifle company, therefore, weapon training comprises:—

- (a) Further instruction of recruits.
 - (b) Exercising fully trained men.
 - (c) Training section commanders to be capable of exercising their own men.
- iii. Battalion commanders will often be well advised to organize a battalion training cadre at which N.C.Os. with the most up-to-date experience at the Small Arms School, Hythe, may pass on the instruction they have gained to other N.C.Os. in the unit. The cadre system, either company or battalion, will generally be found the

most suitable for teaching weapon-training instructors.

- iv. The machine-gun company commander is responsible for training in all subjects connected with machine guns, and also for exercising his men in the rifle and revolver.

3. Principles of instruction

1. Since men under instruction grasp more readily what they see carried out than what they hear, teaching should be by the medium of the eye rather than the ear. The best results will generally be obtained by a combination of the two methods, the instructor accompanying his demonstration by an explanation of his actions, either during or following the demonstration.

In the later stages of training, accuracy and speed of manipulation can gradually be achieved by practice, until men come to handle their weapons by the sense of touch alone.

2. The method and sequence of instruction will vary according to whether the weapon being taught is an individual one, such as a rifle or revolver, or one requiring more than one man to operate it, as in the case of a light automatic or machine gun.

3. **Individual weapons.**—Sequence of instruction.
Preliminaries Preparing squad, inspection of arms, and safety precautions.

Statement of the scope and object of the lesson.

Demonstration of the movements to be performed, accompanied or followed by such **explanation** as will ensure that the squad understand what is being done.

Execution (of the complete operation, or stage by stage).

- The conditions on active service where the action demonstrated would be necessary should be stated.
- i. Collectively—the squad *imitating* the movements of the instructor, who should mention the chief points to be remembered when performing the various movements.
 - ii. Individually—each man repeating on his own what he has carried out in i., while the instructor corrects the faults of each in turn.

Interrogation

After this the instructor will allow the men a short rest, during which the reasons for the points mentioned in i., above, should be explained and the men questioned to ensure that they understand them.

Repetition

- i. Collectively—by word of command—to quicken up the movement.
- ii. Further practice as may be necessary to ensure accurate manipulation by sense of touch.

4. Team weapons.—The sequence of instruction, for lessons where a squad has to work on only one weapon, will be :—

Preliminaries	As in para. 3, above, as far as they apply.
Statement	As in para. 3, above.
Demonstration	As in para. 3, above. Repeated as necessary.
Explanation	As in para. 3, above. Repeated as necessary.
Interrogation	To ensure that each man has understood what has been demonstrated.
Execution	Either (i) The individual performs what he has seen the instructor do, except when mechanism is being taught, or (ii) Individuals are practised in pairs or with others by word of command.
Repetition or Further Interrogation.	As in para. 3, above.

When action by individuals is not being taught.

5. When *exercising* the *trained soldier* in the use of any weapon, this will consist of the *repetition* stage of instruction shown in the sequence given in paras. 3 and 4, above.

6. Instruction suffers if a squad exceeds eight.

7. A period of instruction should not exceed forty-five minutes. In Volumes I and II of this manual the **Lessons** and their **Stages**, where such are required, have been arranged in the sequence in which they should normally be taught. Whether any **Lesson** or **Stage** is completed in one or more *periods of instruction* will depend on its length and on the capacity of the squad. For hints as to framing programmes see Sec 4.

8. Instruction will be progressive. This applies equally to courses, subjects, and lessons. Progression is ensured only by means of carefully prepared programmes.

9. Preparation of the next day's work by instructors is essential, however experienced they may be, and the necessary stores must be placed ready for use when required.

10. Whenever possible the "Question and answer" method of instruction should be utilized. This applies particularly to subjects where only one weapon is available for the whole squad.

Questions should be put so as to induce those under instruction to develop their power of reasoning rather than to test their memory.

The instructor should address his question to the

whole squad and not to one particular individual; then after a sufficient pause he should ask one man for the answer. He should not question men in the order in which they are formed for instruction. Thus each man will have to consider his answer and the whole squad will be kept on the alert.

11. The interest of the men must be roused and maintained. Variety of subject assists this, but apart from this much depends on an instructor's manner. He should be brief and keep to the point, avoiding non-essentials. Competition stimulates keenness and team spirit, but the tendency to sacrifice accuracy for speed must be guarded against.

12. In giving demonstrations, instructors must be absolutely accurate in all their movements.

13. No fault must be overlooked. In correcting faults, instructors will make a man correct himself. A brief demonstration of the fault and question and answer about it are valuable means of bringing it home to the man.

14. Instructors will be careful to avoid personal mannerisms which distract the attention of a squad. They must learn to speak quietly, slowly, and distinctly, and avoid either a monotonous tone of voice or shouting.

15. Various tests, providing a fixed degree of skill, produce increased efforts to reach the required standard. Instructors of recruits will explain the condition of these tests at an early stage of weapon training.

16. The difference between "teaching," "testing,"

and "exercising the trained soldier" must be clearly understood.

4. Programmes of training

The following hints in framing programmes for instruction may be of assistance. Generally speaking, lessons which entail strenuous effort should alternate with easier ones.

1. Visual training and judging distance.—

- i. These should be introduced early and be spread evenly over the whole period of instruction.
- ii. Before reaching **4th stage of visual training** a man should be able to judge distance with reasonable accuracy.
- iii. For the **5th stage of visual training**, before teaching the use of the "degree aid" in recognition, men will be taught how to measure degrees, both with the hand and with the sights of the rifle.

For sequence of instruction see Chapter V.

2. The rifle.

- i. *Accuracy of aim* must precede *standing position* in *firing instruction*.
- ii. Before firing on the miniature range the following lessons must have been completed :—
 - (a) "Accuracy of aim" in *aiming instruction*.
 - (b) "Correct trigger release" } in *firing*
 "Lying position" } *instruction*.

- iii. Before teaching *rapid firing* some practice should have been given in *rapid loading* such as is obtained in *quickenings exercises* with dummy ammunition.

For sequence of instruction see Chapter III.

3. The bayonet.—Training should be introduced as soon as the man has learnt to fire the rifle in the standing position.

For sequence of instruction see Chapter IV.

4. Fire discipline training.

First stage should be spread evenly over the earlier part of the training.

Second stage should be spread evenly over the more advanced individual training and in the earlier part of collective training.

For sequence of instruction see Chapter III.

5. Application of fire.—Before practising *fire orders* with harmonized sights the methods of *concentrating* and *distributing fire* must have been taught, and the *recognition stage* in *visual training* must have been completed.

For sequence of instruction see Chapter V.

6. The grenades.—Firing instruction with grenades should be introduced after instruction in firing the rifle behind cover.

For sequence of instruction see Chapter II, Volume II.

7. The light automatic.—Training may be conveniently introduced as soon as recruits have begun

firing the rifle on the 30-yards or open range. If training is delayed too long there is a probability that there will be too much instruction in the light automatic crowded into each day's work.

For sequence of instruction see Chapter I, Volume II.

8. The revolver.—Training for those armed with this weapon may be introduced during instruction in the light automatic.

For sequence of instruction see Chapter VI.

9. The sequence for training in the **Vickers machine gun** is contained in Volume III.

5. *The record book, A.B. 142A., B. and T.*

1. Every N.C.O. and man will be in possession of a record book suitable to his weapon-training category. These books will be issued to recruits as soon as their weapon training commences (Sec. 24.). They must be carefully preserved and will be brought on all weapon-training parades or when firing on the range.

2. The conditions of all *Tests of Elementary Training* are shown in these books. The person conducting the tests will enter the results at the conclusion of each test and in the presence of the man tested.

6. *Safety precautions during training*

1. At the beginning of all weapon-training parades, arms, dummy cartridges, pouches, etc., will be carefully examined.

2. The detailed safety precautions necessary during training, especially when ammunition is used, are laid down in the several volumes of this manual.

3. Experiments, tests, etc., with explosives, tubes, fuzes, grenades or detonators are in no case to take place inside any building. They will be carried out in the open with the greatest care and only by individuals who have received expert training and are qualified to do so.

Any building which contains explosives should be considered as an explosive store, and be dealt with as far as possible in accordance with Magazine Regulations.

4. Dummy ammunition is employed during training in the case of all weapons dealt with in this manual. Its use is necessary to efficiency, but the consequent risk of accident must be recognized by all commanders. **Unless the regulations for its use are strictly carried out accidents are almost certain to occur either sooner or later.**

The best preventive of accidents is discipline.

5. When dummy cartridges are used for setting up stoppages with automatic weapons on the range, officers conducting the practice will personally supervise the issue and subsequent collection of the dummy cartridges.

7. *Weapon training year.*

1. For purposes of firing annual courses and accounting for practice ammunition the weapon-training period

will be divided into years beginning as under, to accord with local climatic conditions.

At Home	1st November
Gibraltar...	} 1st January.
Mauritius...	...	...	...	...
North China	...	...	...	...
Ceylon	} 1st February.
Cyprus	...	...	...	...
Bermuda	...	...	...	...
Egypt and the Sudan	} 1st April.
Jamaica	...	...	...	...
Malta	...	...	...	...
Malaya	} 1st September.
South China	...	...	...	...
West Africa	...	...	...	...
Palestine	1st March.
Iraq (British Troops)	1st November.

2. In India the weapon-training year will begin on 1st April except in the case of the Baluchistan District, where, for climatic reasons, it will begin on 1st January.

3. The weapon-training year for a unit proceeding on foreign service will be held to commence in the foreign station to which the unit is proceeding; thus a unit leaving England in January for Egypt will commence its weapon-training year on 1st April.

When on its homeward journey (from India) the weapon-training year for the unit will be held to commence at the one-year station to which it proceeds before final departure for England, or, if proceeding home direct from India, then at home.

8. *The Small Arms School* *

1. The Small Arms School consists of a Headquarters at Netheravon, and three Wings, situated one at Hythe and the others at Netheravon and Winterbourne Gunner respectively.

Instruction is given :—

- i. At the **Hythe Wing** : in rifle and bayonet; light automatic; revolver; grenades.
- ii. At the **Netheravon Wing** : in Vickers machine gun; range-finder; anti-tank weapon.
- iii. At the **Anti-Gas Wing** : in all equipment and training concerned with anti-gas defence.

General officers commanding-in-chief will correspond direct with the Commandant on weapon and anti-gas training questions.

2. The objects of the School are :—

- i. To teach officers to conduct weapon and anti-gas training in their units, and to train selected warrant officers and non-commissioned officers as instructors in the weapons and equipment with which their units are provided.
- ii. To study and to teach the technical handling of the weapons and equipment enumerated in para. 1, above.
- iii. Under the instructions of the Army Council, to teach the application of the fire and the tactical handling of the above weapons as well as all measures of anti-gas defence.

* See also King's Regulations, 1928, paras. 837/8.

3. In addition to the above instructional duties, the School will :—

- i. Carry out such trials of weapons, ammunition and equipment as the Army Council may from time to time require.
- ii. Advise the Army Council on the question of ranges and material for weapon and anti-gas training.
- iii. Keep in touch with the regulations, method of training, and progress of foreign armies, so far as small arms and anti-gas measures are concerned.
- iv. In conjunction with the School of Anti-Aircraft Defence, study the development of anti-aircraft defence with small arms.

4. Responsibility of the Commandant :—

- i. He will keep in close touch with Commands at Home and Abroad, and with the Small Arms Schools in India and the Dominions, on all matters connected with small arms and anti-gas training. For this purpose he is empowered to visit commands at Home. He will report on the general standard of small arms and anti-gas training of all arms, excluding, so far as small arms are concerned, the Royal Tank Corps and the cavalry armoured car regiments.
- ii. He will draw up for approval by the Army Council the annual courses and the necessary training

tests for all small arms, excluding those of the Royal Tank Corps and the cavalry armoured car regiments.

- iii. He will submit to the Army Council extracts from the weapon-training reports of general officers commanding-in-chief, together with such statistics and recommendations as he may consider necessary, based on the results obtained in the annual weapon-training courses by troops serving at home.
- iv. He will be an ex-officio member of the Small Arms Committee, and will keep in touch with the Staff College, the Senior Officer's School and other training establishments.

5. **Courses of instruction.**—The yearly programme of courses of instruction to be held at wings of the Small Arms School will be published annually in Army Orders.

The methods of classifying students will be as follows :—

i. Hythe Wing—

(a) Officers' Short Qualifying Courses.

"Qualified" } Qualified for promotion.
 "Failed."

(b) Young Officers' Courses.

"Qualified 1st Class" } Qualified for pro-
 "Qualified " } motion.
 "Failed."

(c) **Warrant and Non-commissioned Officers' Long Qualifying Courses.**

"Distinguished"	}	Qualified as a Training Cadre Instructor.
"Qualified I"		
"Qualified II"		Qualified as an Instructor for training recruits or exercising trained men.

"Failed."

ii. **Netheravon Wing—**

(a) **Squadron and Company Commanders' Courses.**

"Distinguished"	}	Qualified to command and train a machine-gun squadron or company.
"Qualified"		

"Failed."

(b) **Troop and Platoon Commanders' Courses.**

"Distinguished"	}	Qualified to command and train a machine-gun troop or platoon.
"Qualified"		

"Failed."

(c) **Non-commissioned Officers.**

"Distinguished"	}	Qualified to command and train a section and to train individuals in drill and mechanical subjects.
"Qualified I"		

"Qualified II"	Should reach Standard I with further training and experience.
----------------	---

"Failed."

iii. **Anti-Gas Wing—
Regimental Instructors' Courses.**

(a) *Officers.*

"Distinguished"	}	Qualified to train other instructors in defence against gas.
"Qualified"		
"Failed."		

(b) *Warrant and Non-commissioned Officers.*

"Distinguished"	}	Qualified to train other instructors in defence against gas.
"Qualified I"		
"Qualified II"	}	Qualified as an instructor for training recruits or exercising trained men.
"Failed."		

6. **Record of qualifications.**—The Commandant will forward to the War Office lists of officers who have attended, showing the results of their examination. He will also furnish general officers commanding-in-chief and the Deputy Adjutant-General, Royal Marines, with the names of officers, warrant officers and non-commissioned officers who have qualified or who have failed.

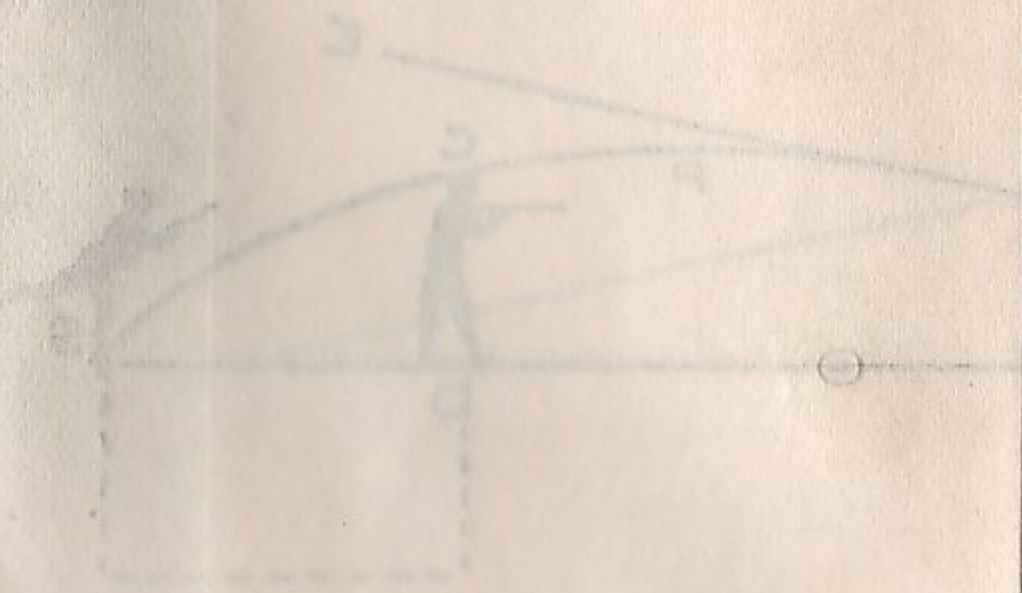
The names of those who have qualified and the weapons or courses in which they have qualified will be published in Command or District Orders, and the qualifications entered in their records of service.

7. **The Small Arms School Corps.**

i. The warrant officer and non-commissioned officer instructional staff employed at the

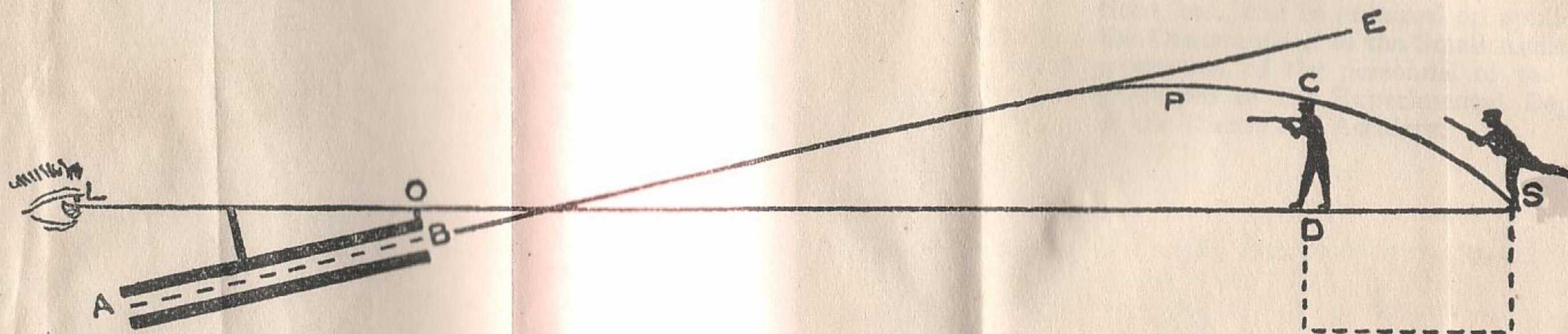
Hythe and Netheravon Wings of the Small Arms School belong to the Small Arms School Corps.

- ii. Candidates for appointments to this Corps must be serjeants or lance-serjeants, and will be finally approved for transfer only if found suitable after a six months' probation at the School.
- iii. Full details as to pay, terms of service, qualifications, etc., can be obtained on application to the Commandant of the Small Arms School.
- iv. A proportion of the personnel of the Corps is employed in the Experimental Department of the Director of Artillery.



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PLATE 1 DEFINITIONS



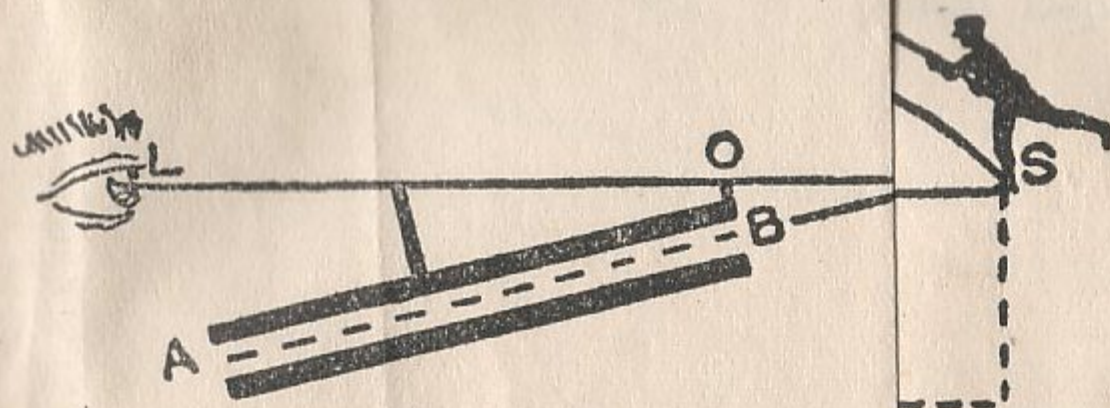
A B = Axis of barrel
B E = Line of departure
B S = Line of fire (not drawn in diagram)

LOS = Line of sight*
BPS = Trajectory
P = Culminating point

C = First catch
S = First graze
DS = Dangerous space

* Not necessarily horizontal as shown in this diagram.

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- A B = Axis of barrel
 B E = Line of departure
 B S = Line of fire (not drawn in this space)

CHAPTER II

THE THEORY OF SMALL-ARM FIRE

In order to obtain the full fire effect from the weapons with which their men are armed, it is necessary for officers and fire unit commanders to have a working knowledge of the theory of small-arm fire. Those wishing to study the subject in further detail should consult the Textbooks concerned.

9. Definitions (See Plate I)

The *axis of the barrel* is an imaginary line following the centre of the bore from breech to muzzle.

The *line of departure* is the direction which the bullet takes on leaving the muzzle. Theoretically this is in prolongation of the axis of the barrel, but generally it differs from this by an amount depending on the jump.

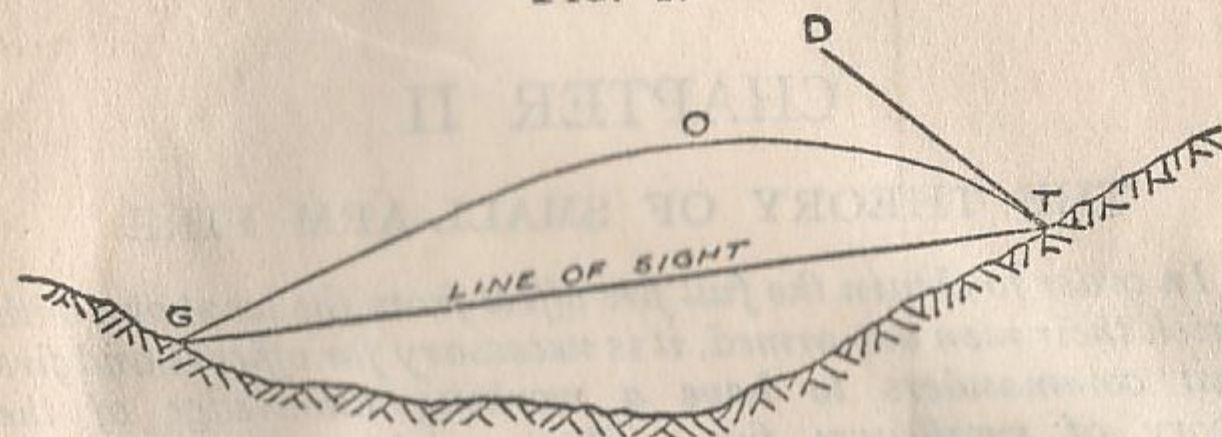
The *line of fire* is the direction of the target from the muzzle of a weapon.

The *line of sight* is a straight line from the firer's eye, through the sights, to the point aimed at.

The *trajectory* is the curved path taken by a bullet during its flight.

The *angle of descent* (Fig. 1) is the angle which the tangent to the trajectory makes with the line of sight at the point of impact.

FIG. 1.



GT = line of sight. DT is the tangent to the
 GOT = trajectory. trajectory at the point of
 T = point of impact. impact.
 Then angle DTG = angle of descent.

The *culminating point* is the greatest height above the line of sight to which the bullet rises in its flight; this occurs a little beyond half the distance which the bullet travels.

The *first catch* is the point where the bullet has descended sufficiently to strike the head of a man whether mounted, kneeling or lying.

The *first graze* is the point when the bullet, if not interfered with, will first strike the ground.

The *dangerous space* for any particular range is the distance between the *first catch* and the *first graze*.

The *cone of fire* is the pattern formed in the air by the trajectories of a number of bullets fired with the same aim whether from one or more barrels.

The *beaten zone* is the area of ground beaten by a cone of fire.

The *dangerous zone* is the area of the beaten zone, plus the area formed by the dangerous space for the lowest bullet.

The *culminating point of a cone* is the culminating point of the centre bullet of a cone.

A *defiladed zone* is the area of ground that would be included in the beaten zone but for the fact that the bullets which would have fallen on it have been intercepted by an obstruction, usually a piece of high ground.

Ranging is the process of determining by observation of fire the direction and elevation required to hit a given target.

10. Elementary theory

1. *Force of explosion*.—When a round of ammunition is fired the gases formed by the burning of the charge push the bullet forward through the *bore* to the *muzzle*, and out into the air. With Mark VII ammunition the velocity with which the bullet leaves the *muzzle* is 2,440 feet a second.

2. *Resistance of the air*.—Resistance of the air causes the velocity of the bullet to decrease rapidly, and allows it to travel only about 600 yards in the first second, about 400 yards in the second second, and about 300 yards in the third second.

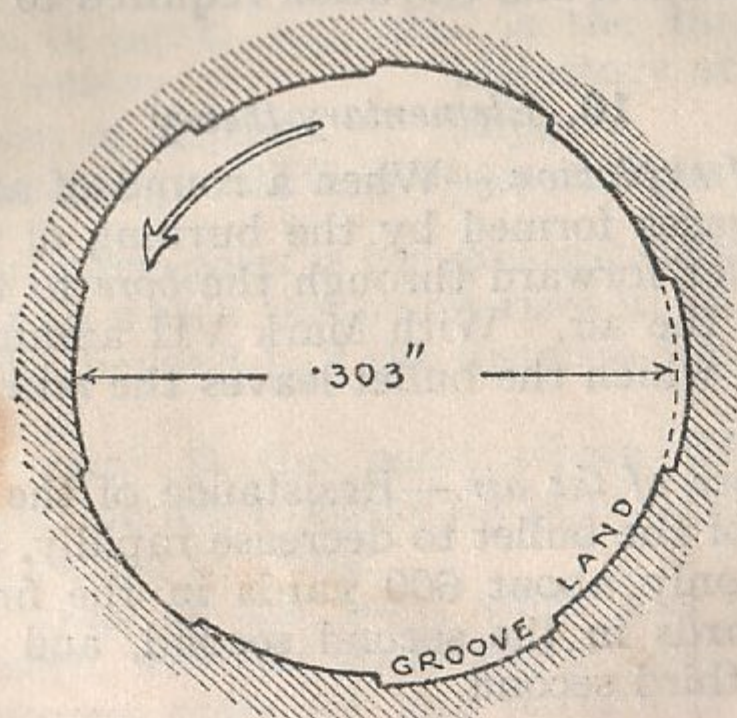
3. *Gravity*.—Gravity acts on the bullet immediately it leaves the *muzzle*, drawing it downwards with ever-increasing velocity. Thus the path of the bullet, known as the *trajectory*, is curved instead of straight and becomes steeper as the range increases.

4. *Elevation*.—In order to allow for the fall of the bullet it is necessary to direct the line of departure as much above the object to be hit as the bullet will fall below it if the axis of the *barrel* is pointed at the target. This raising of the *barrel* to allow for the curve of the trajectory is termed *giving elevation*. (Plate 2.)

As the target must be kept in view, the weapon is provided with sights which permit the firer to give the elevation required without losing sight of the mark.

5. *Rifling*.—A *barrel* is said to be *rifled* when it has spiral grooves cut down the *bore* (see Fig. 2).

FIG. 2



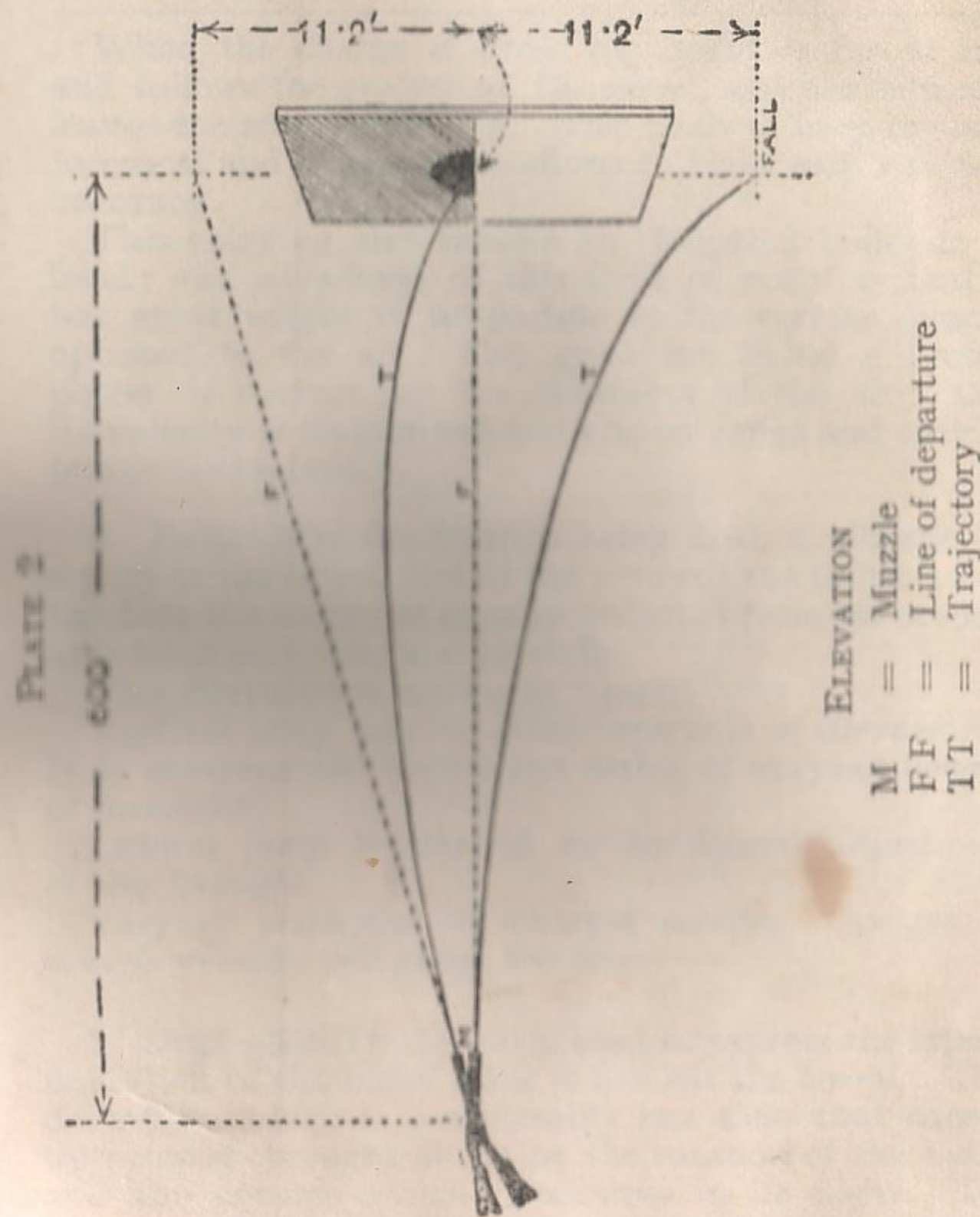
Enfield Rifling—(Rifle and Machine Gun).

Left-handed. One complete turn in 10".

Depth of grooves .005 to .008.

In the *Light Automatic* the rifling is *right-handed* and there are 4 grooves instead of 5.

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When the charge is fired, the bullet is forced into and follows the *grooves* up the *barrel*, and consequently leaves the *muzzle* spinning. This tends to keep the nose foremost and to ensure steadiness in flight with resultant accuracy.

This spinning also enables an elongated bullet to be used; the advantage of this form of bullet is that it has great weight in proportion to the surface directly opposed to the air. This gives the bullet a greater power of overcoming the resistance of the air; thus its velocity is maintained and greater range and striking power is obtained.

6. *Jump*.—On the weapon being fired, a vibration is set up in the *barrel*, and at the moment the bullet leaves the *bore* the *muzzle* is usually deflected from its original axis both vertically and laterally.

This deviation is known as "jump."

Vertical jump may be either upwards or downwards. It is compensated for by the fitting of varying heights of foresight.

Lateral jump is allowed for by lateral adjustment of the foresight.

Varying strengths of charges causing changes in *muzzle* velocity will affect the jump.

7. *Drift*.—Drift is the term used to express the lateral deviation of the bullet after it has left the *barrel*. This deviation, which is considerably less than that caused by jump, is brought about by the rotation of the bullet and the position which it assumes in its flight. The left-handed rifling of the service rifle and Vickers machine

gun causes the bullet to rotate from right over to the left, and the point to work slightly over to the left. The consequent increased air-pressure on the right side of the bullet forces it to the left.

The rifling of the light automatic gun being right-handed, the bullet deviates to the right.

The deflection due to drift at distances below 1,000 yards is negligible. At 1,500 yards it may be regarded as about 7 feet.

Drift is not allowed for in the sighting of .303-inch weapons.

8. *Sighting of .303-inch weapons.*—In sighting .303-inch weapons an average elevation for each range has been adopted. This means that the sight graduations of each weapon give the average elevation required by many thousands of weapons. In addition, each weapon is carefully tested before issue and is sighted to hit the point aimed at, within certain close limits. There are, however, in each weapon small manufacturing variations that cannot be avoided in an arm produced on a large scale. Further, variations are produced by wear of parts, the slackening or tightening of screws, and in the packing of Vickers machine-gun barrels. These inequalities produce an individuality in each weapon which shows itself in a slight variation of the sighting elevation required; it is, therefore, necessary for each man to study the shooting peculiarities of the weapon with which he is armed.

9. *Atmospheric conditions.*—The effect of atmospheric conditions other than wind, need not normally be considered on active service. It is sufficient if it is

realized that, when fighting at high altitudes, less elevation may be necessary. The variation will only be about 50 yards at 800 yards' range at a height of 4,000 feet.

Alterations of temperature need not be taken into consideration except that when cartridges have become heated in the sun, rifles are liable to shoot high.

10. *Wind.*—The effect of wind on the path of the bullet is considerable, especially at the longer ranges. The direction and strength of the wind can be judged by watching trees, grass, etc., and by personal sensation.

Men must study the effect of wind and know how to calculate the necessary allowances to make at the different ranges for winds of varying strengths. (See Wind Tables, Sec. 26, Lessons 2 and 5.)

Head and rear winds.—Up to 1,500 yards no allowance is necessary.

For strong winds at 1,500 yards add 50 yards for a head wind.

For strong winds at 2,000 yards deduct 50 yards for a rear wind.

(For Vickers machine gun, see Volume III.)

11. *Dangerous space.*—

i. The extent of the dangerous space depends on :—

(a) The range (see Fig. 3).

(b) The firer's position and the consequent height of his weapon above the ground (see Fig. 4).

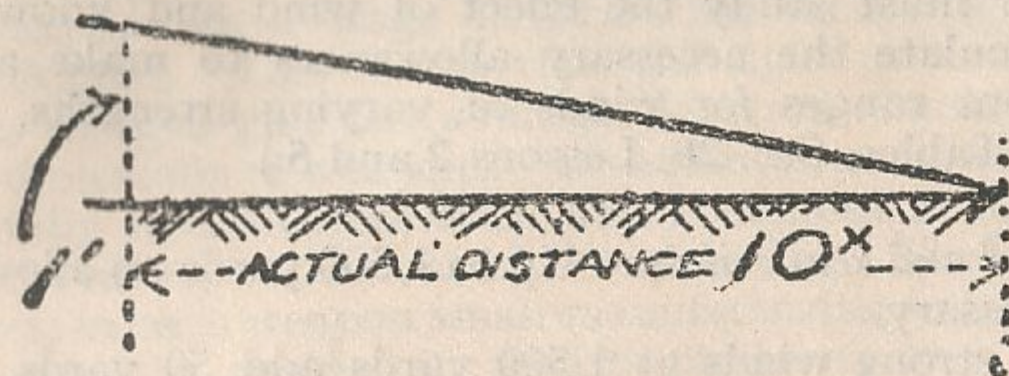
FIG. 3

This diagram shows height increased 6 times.



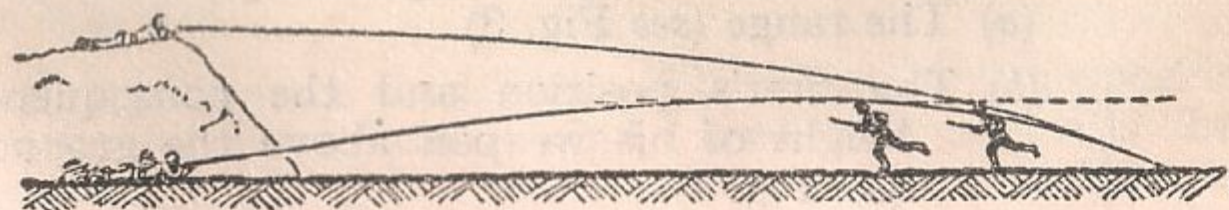
Range = 600 yards.
Slope of fall = 1 in 90.

∴ Dangerous space for prone man (1' high) is 30 yards (approx.).



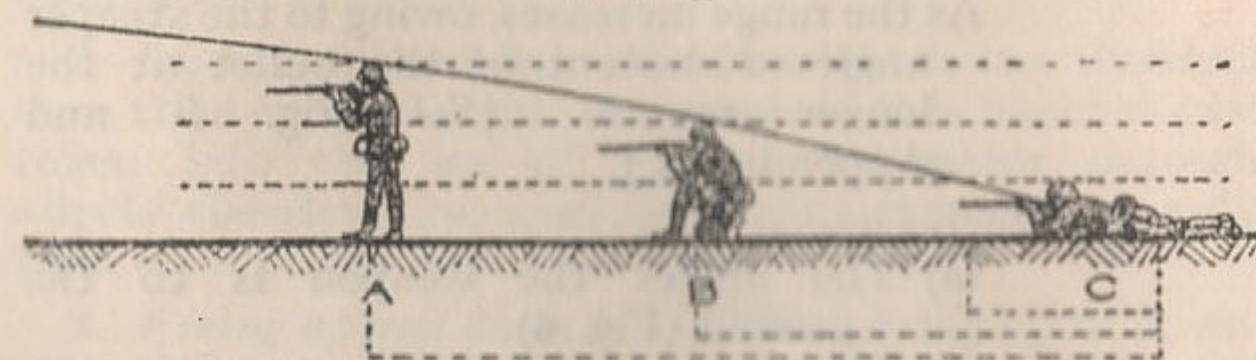
Range = 1,000 yards.
Slope = 1 in 30.
Dangerous space is 10^x (approx.).

FIG. 4



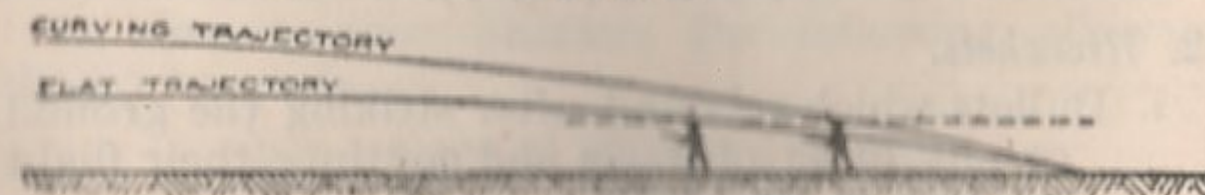
(c) The height of the object fired at (see Fig. 5).

FIG. 5



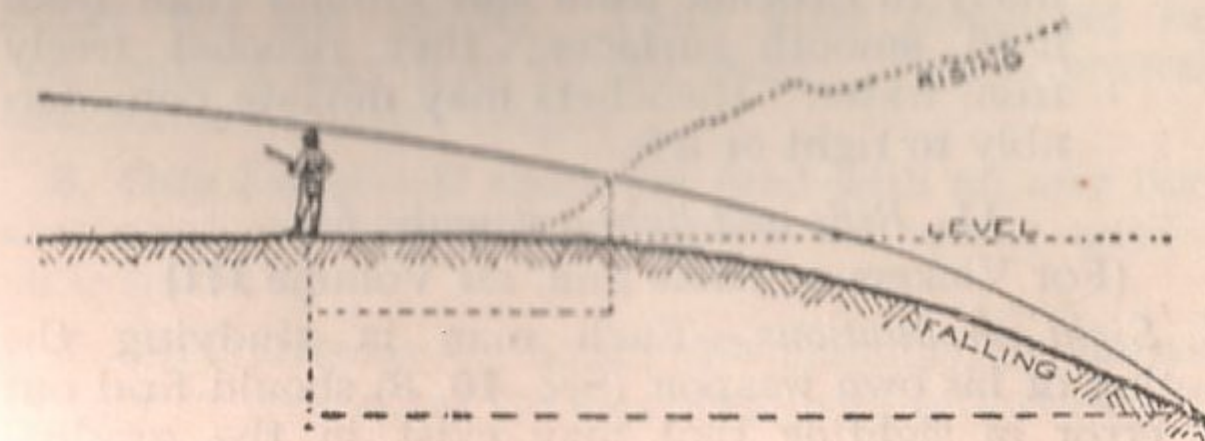
(d) The flatness of the trajectory (see Fig. 6).

FIG. 6



(e) The conformation of the ground (see Fig. 7).

FIG. 7



ii. *The dangerous space*—

Decreases :—

As the range increases, owing to the steeper angle of descent of the bullet at the longer ranges. (See Fig. 3 and Appendix II.)

Increases :—

- (a) The nearer the weapon is to the ground (Fig. 4).
- (b) The higher the object fired at (Fig. 5).
- (c) The flatter the trajectory (Fig. 6).
- (d) The more nearly the slope of the ground conforms to the angle of descent of the bullet (Fig. 7).

12. *Ricochets.*

- i. Bullets which rebound after striking the ground or any other obstacle and continue their flight are said to ricochet.
- ii. Ricochets may occur from any surface, and bullets may ricochet two or even three times before their flight is finally arrested. Bullets are less likely to ricochet from soft ground than from hard, smooth surfaces; they ricochet freely from water. Ricochets may deviate considerably to right or left.

11. *Rifle and light-automatic fire*

(For Vickers machine gun, see Volume III)

1. *Sight graduations.*—Each man in studying the shooting of his own weapon (Sec. 10, 8) should find out any error in sighting that may exist in the gradua-

tions up to 600 yards and set his sights accordingly. At the longer ranges the graduations on the *backsight* should be regarded as the best possible guide under all conditions.

2. *Light.*—In bad light the foresight is less distinctly seen than in good light, and more of it is unconsciously taken into the line of sight. This factor naturally affects the elevation used, less being required on a dull than on a bright day.

3. *Firing up and down hill.*—When firing up or down a steep hill, since the pull of gravity is not at right angles to the line of sight, an elevation less than the normal for the distance is required. A departure of less than 20° from the horizontal line of sight has little effect and need not be allowed for in ordinary ground shooting.

In mountainous districts the following allowances should be made :—

For a slope of 20° use $\frac{1}{4}$ of range

" " " 40° " $\frac{1}{2}$ " "

" " " 60° " $\frac{3}{4}$ " "

20° equals a gradient of about 1 in 3.

4. *Heated barrel.*—The bore expands and hence the bullet fits less tightly. Thus, after prolonged rapid fire, bullets may tend to fall short. This is especially noticeable at longer ranges.

5. *Oily barrel.*—If shots are fired with an oily barrel, abnormal shooting and vibration will occur until the oil is burnt up.

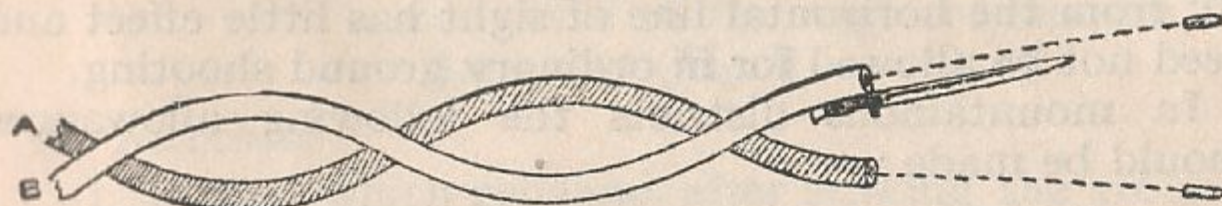
6. *Oily cartridge.*—Should the chamber or cartridge be oily or wet, extra back-pressure will be developed on

the *bolt head* owing to lack of friction between the case and the chamber. This will affect vibration, and erratic shooting will result.

7. *The stocking up of the rifle*, i.e. the fitting of the fore-end to the barrel and body, is most carefully done at the factory. Any warping of the fore-end or loosening of screws, or the presence of any foreign body between the fore-end and the barrel may affect the jump and thereby affect the shooting of the rifle.

8. *Effect of firing with the bayonet fixed*.—The weight of the bayonet affects the jump and the shooting of the rifle (Fig. 8).

FIG. 8



JUMP

S.A. Ammunition Mark VII

In the above diagram the barrel B shows the effect of firing with bayonet fixed

Normally with Mk. VII ammunition the jump is upwards, and allowance has to be made, but no two rifles shoot exactly alike. As a rough guide it has been found that a bullet fired from the average rifle with a bayonet fixed at 300 yards' range strikes the target about 1 foot above the point it would have struck had the bayonet not been fixed.

In every case the man must ascertain the shooting of his rifle. Fig. 8 shows, in an exaggerated form, the

To face page 32.]

PLATE 3
CONE OF FIRE

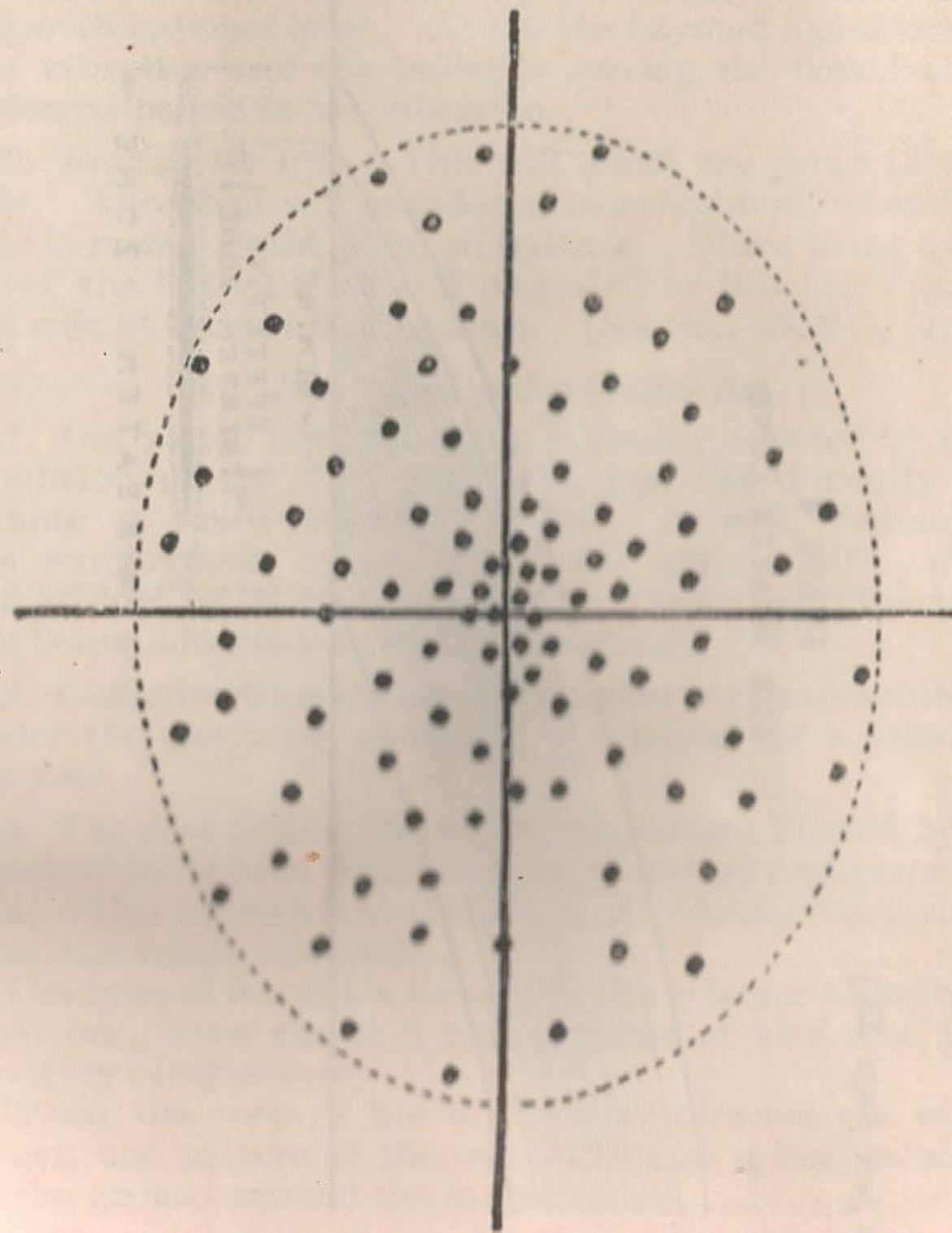
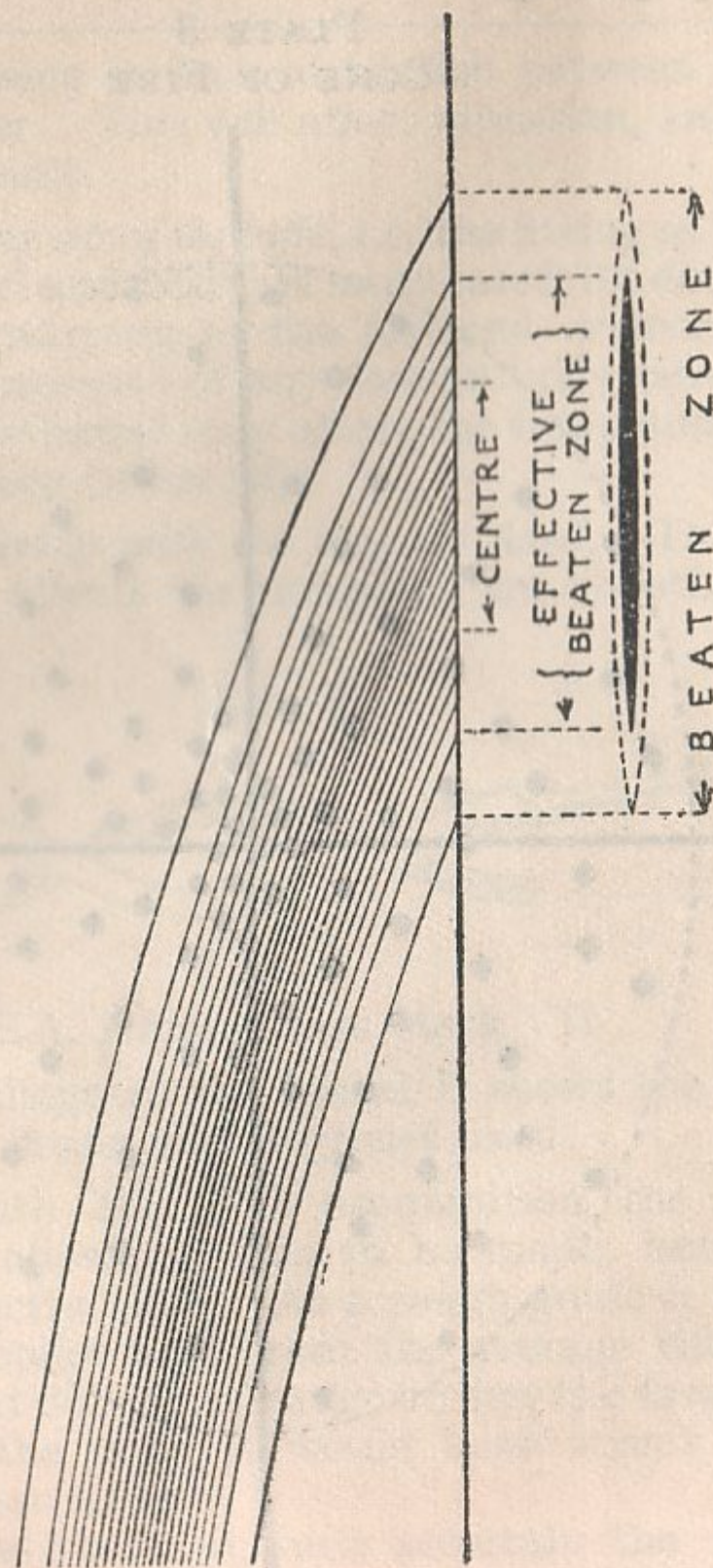


Diagram of a cone of fire showing the pattern made by a group of 100 shots fired at a target.

To face page 33.]

PLATE 4
THE BEATEN ZONE



vertical vibration of a barrel (A) without bayonet, and (B) with bayonet fixed. At (B) the bayonet has affected the vibration and the bullet is leaving the barrel at a different period in the vibration.

9. *Resting the rifle.*—This will affect the jump of the rifle. The effect will be reduced to a minimum when the rifle is rested at the point of balance. When firing over cover the left hand should be rested as this hand grips the rifle at the point of balance. (See Sec. 33, 6, i, (a)).

12. Individual and collective fire

1. Individual marksmanship is greatly affected by the condition of the firer, the light, and the difficulty of aiming at small indistinct targets. In war, therefore, the employment of individual fire beyond 600 yards will seldom be advisable, collective rifle fire or automatic fire being necessary to obtain fire effect.

2. *Collective fire* is the fire of a number of rifles combined under the executive command of a leader for a definite purpose.

3. *The cone of fire* (Plate 3) is the pattern formed by a series of shots fired with the same elevation and point of aim. This pattern is oval in shape, its density decreasing from the centre outwards.

The cone of fire of a number of rifles is larger than that from one, since the skill and eyesight of men and the shooting of rifles vary.

When the cone of fire is correctly directed on to a target, the pattern of the cone will form a beaten zone on the ground around the target.

4. The size of this *beaten zone* (Plate 4) will vary with

the range and the slope of the ground in relation to the trajectory. That portion of the beaten zone containing the inner 75 per cent. of the shots is known as the *effective beaten zone* (E.B.Z.). Useful results can only be expected if the target is included within the E.B.Z. for any range.

5. As the range increases, the length of the E.B.Z. decreases (Plate 5). This is due to the increased angle of descent of the bullet. Beyond 1,500 yards the E.B.Z. increases again, especially laterally, and at the same time the angle of descent becomes steeper and the dangerous space becomes less. As a result, more bullets have to be fired to obtain fire effect at longer ranges, and the range has to be more accurately known. It will be seen, therefore, that a point is soon reached beyond which even collective fire is unlikely to be effective or to justify the expenditure of ammunition entailed.

13. The permissible error in ranging

1. By this term is meant the error which can be made in estimating the range while still keeping the target within the E.B.Z.

2. The permissible error in ranging is equal to half the depth of the E.B.Z. for any particular range (Fig. 9), *e.g.*, assume target to be 1,000 yards distant. E.B.Z. of the rifle section is 180 yards. If the range obtained is absolutely correct, half the E.B.Z. will be on one side of the target and half on the other. If an error of over 90 yards is made, *i.e.* half E.B.Z., the whole of the E.B.Z. will miss the target.

[To face page 34.]

PLATE 5 EFFECTIVE BEATEN ZONES (75%). On level ground.

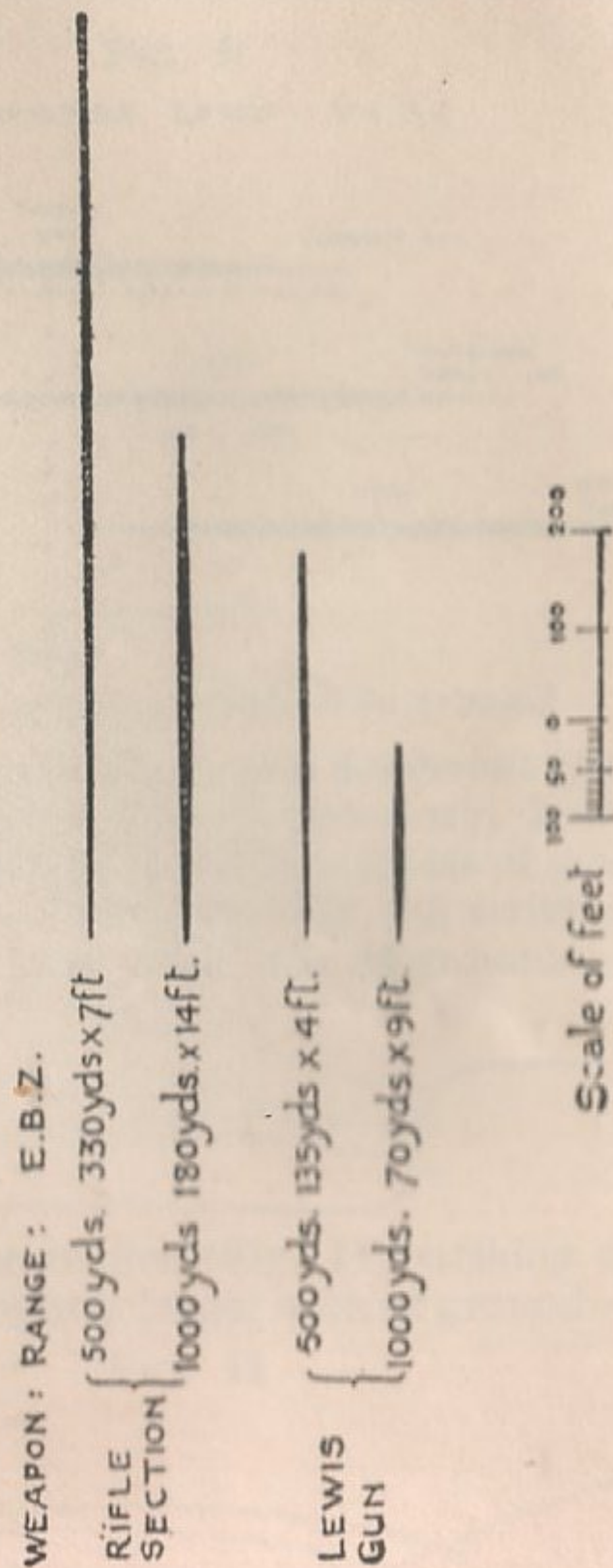
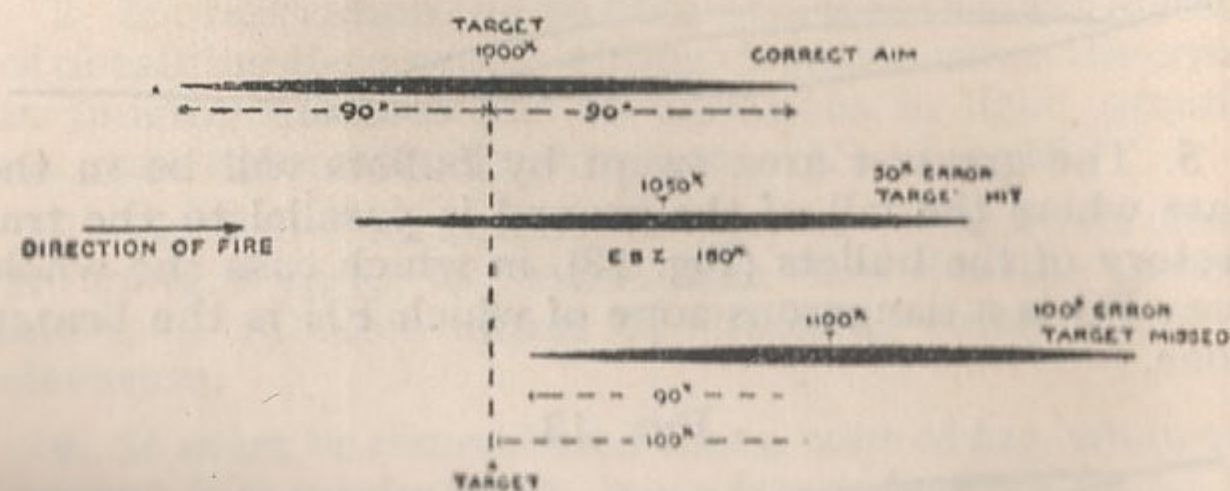


FIG. 9

PERMISSIBLE ERROR = $\frac{1}{2} \epsilon B Z$

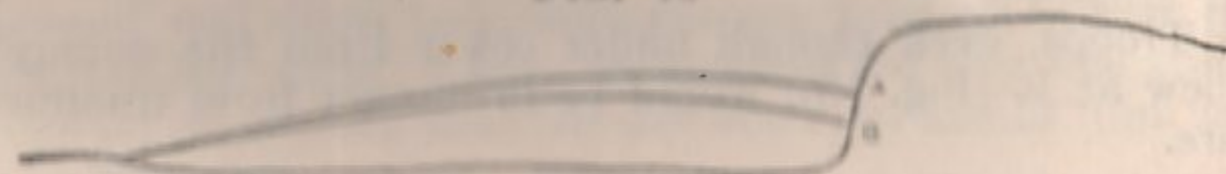


14. Fire effect in relation to ground

1. *Cones of fire, beaten zones, and dangerous spaces* have already been explained. It is necessary, however, to consider them in relation to various forms of ground.

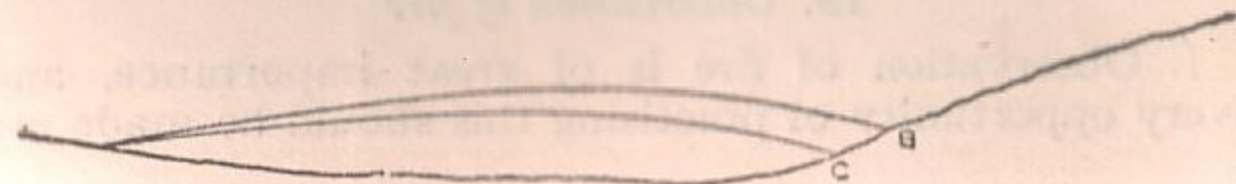
2. For example, a cone of fire (Fig. 10) striking a steep hillside will cover a very small area of ground—AB.

Fig. 10



3. The same cone of fire (Fig. 11) striking a gentler slope will cover a slightly larger area of ground—BC.

FIG. 11



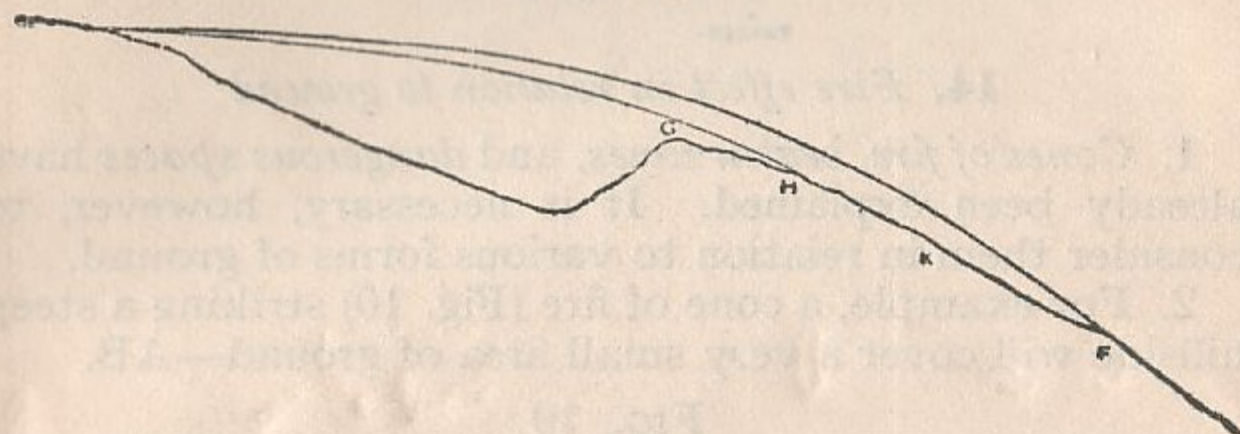
4. In similar proportion—see DE, Fig. 12.

FIG. 12



5. The greatest area swept by bullets will be in the case where the fall of the ground is parallel to the trajectory of the bullets (Fig. 13), in which case the whole area FG is a dangerous zone of which FH is the beaten zone.

FIG. 13



Troops, even though under cover from the enemy's view at K (Fig. 13), would be in danger from unaimed fire.

6. The above considerations indicate that it is more difficult to get fire effect against rising ground, than against ground which is flat or falling away.

15. Observation of fire

1. Observation of fire is of great importance, and every opportunity of practising this should be made use

of during battle practices. The possibilities of observing fire will depend largely on the nature of the surface of the ground. Field glasses will be of great assistance.

2. If observation can be obtained, it is the best method of obtaining the correct sighting elevation, since the errors in judging distance due to variations in light, ground, etc., are automatically overcome. (See Sec. 48.)

3. The fire of an automatic weapon, owing to its closer grouping, is easier to observe than that of a rifle section, and is a valuable means of obtaining correct sighting elevation.

4. It must be remembered that a cone of fire, whatever weapon it is produced by, has a few wide shots round its edges. The observation of single bullets is, therefore, not to be taken as indicating the central portion of the E.B.Z.; rather the reverse, since, if the ground will show one shot, it will show more if they are there.

5. If the fall of bullets both short of, and beyond, the target be observed, it is safe to assume that the target is being effectively engaged. But, as the same area of ground will often be simultaneously fired on in war by several fire units, it may be difficult for any one commander to be sure that the fire observed comes from his own weapons.

CHAPTER III

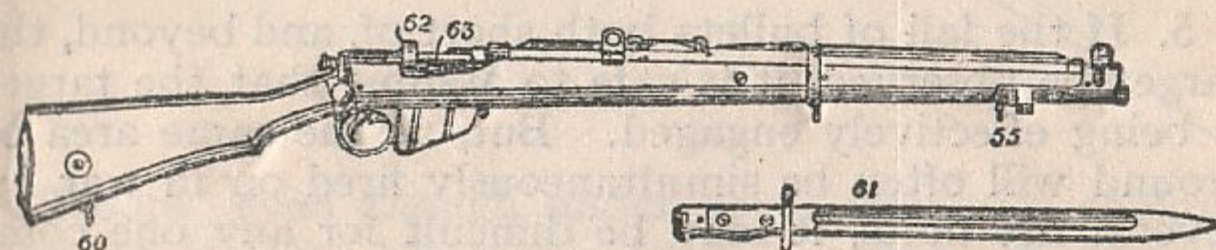
THE RIFLE

THE CARE AND MECHANISM OF THE RIFLE

16. General

1. Platoon commanders are responsible to their company commanders for the condition of the arms on their charge and for instructing their men in the care thereof, so that no unnecessary wear of the bore may occur and the arms may be kept in such condition as to be always capable of accurate and rapid shooting.

FIG. 14

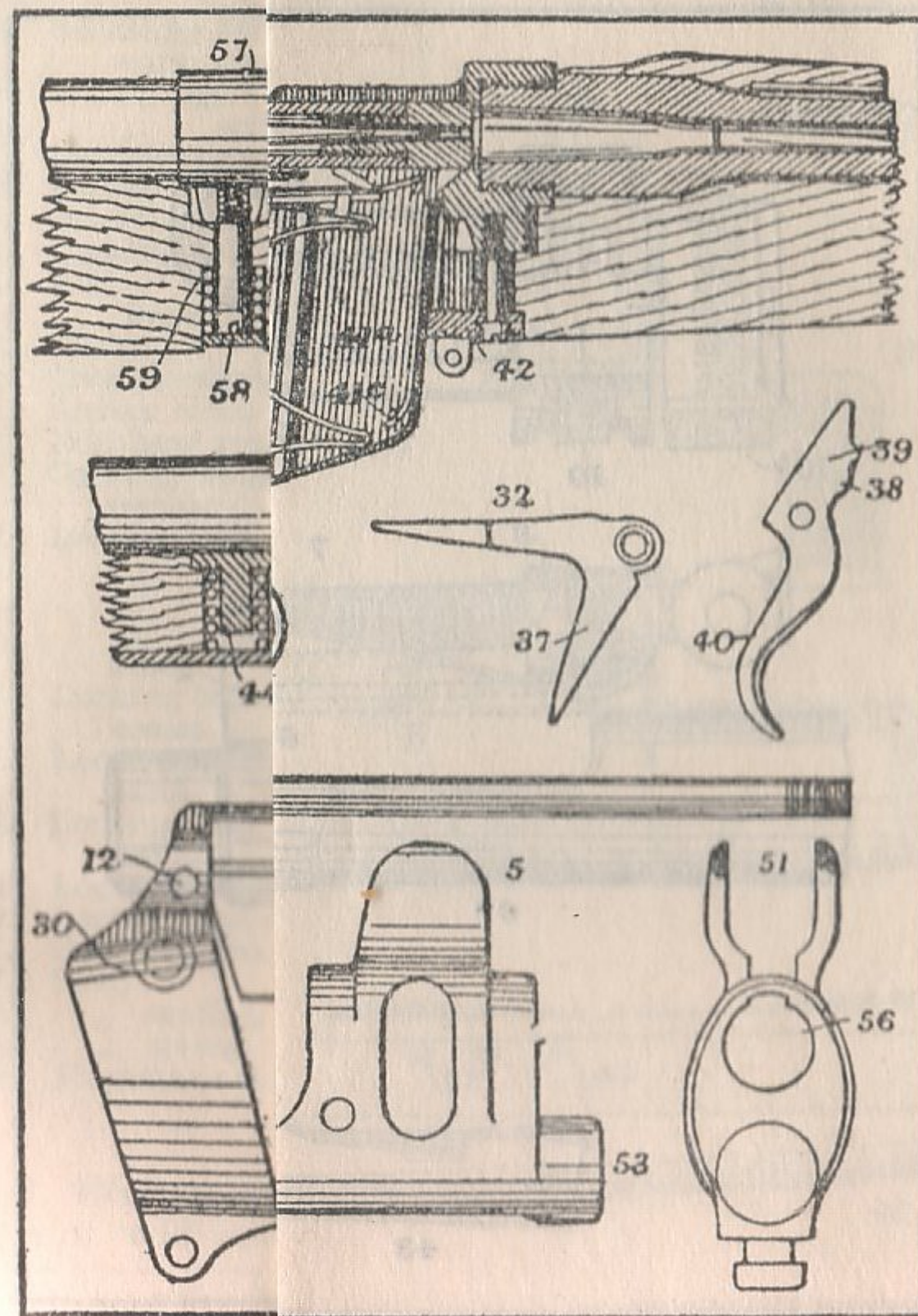


2. KEY TO THE NAMES OF THE PARTS OF RIFLE,
No. 1 MARK III, S.M.L.E. .303-INCH. REFERRED
TO IN FIG 14 AND PLATES 6 AND 7

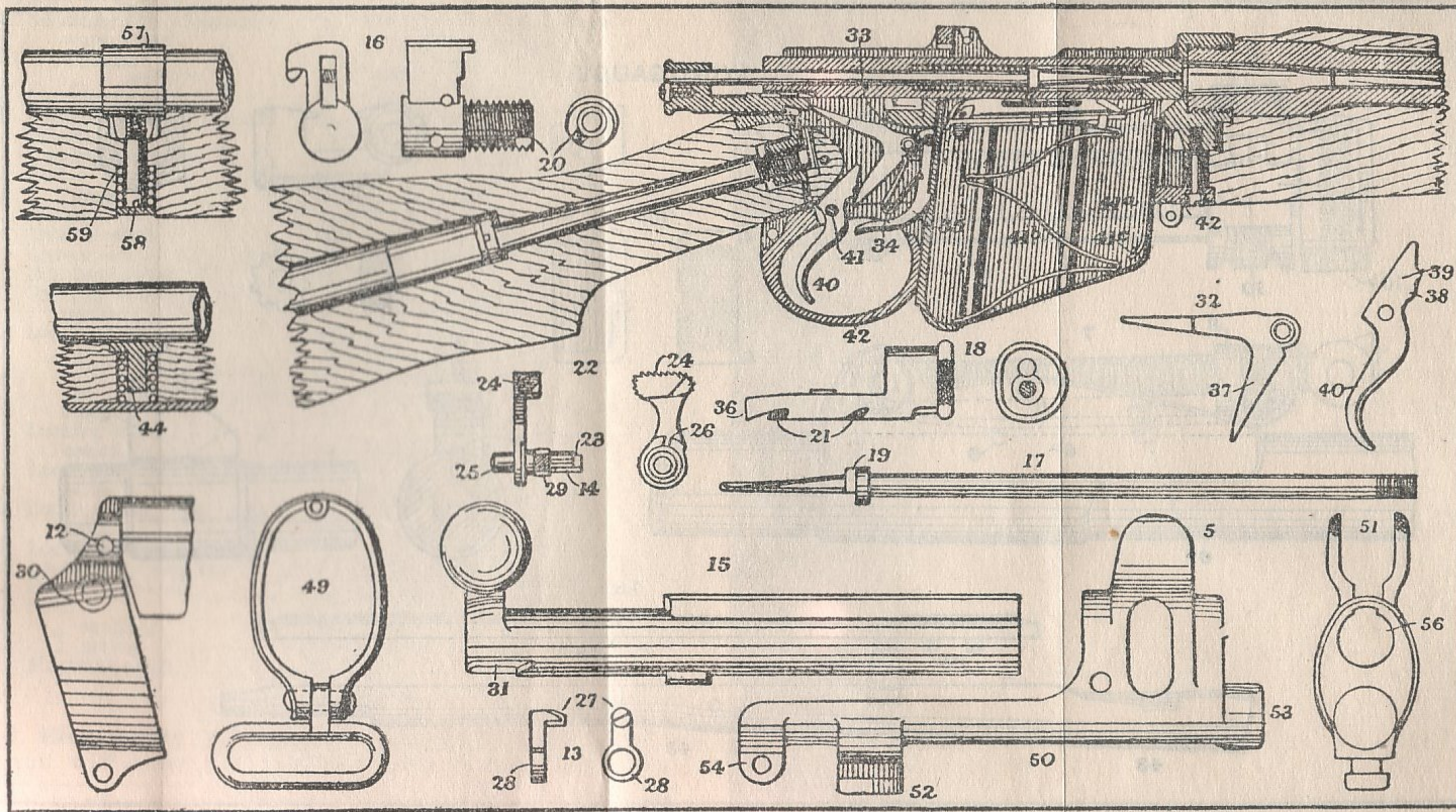
- | | |
|--------------------------|----------------------------|
| 1. Blade foresight. | 6. Backsight bed crosspin. |
| 2. Foresight block. | 6A. " " sight spring |
| 3. Band foresight block. | screw. |
| 4. Key " " | 7. Backsight leaf. |
| 5. Crosspin " " | 8. " slide. |
| 5A. Backsight bed. | 9. " slide catch. |

To face page 3

[PLATE 6

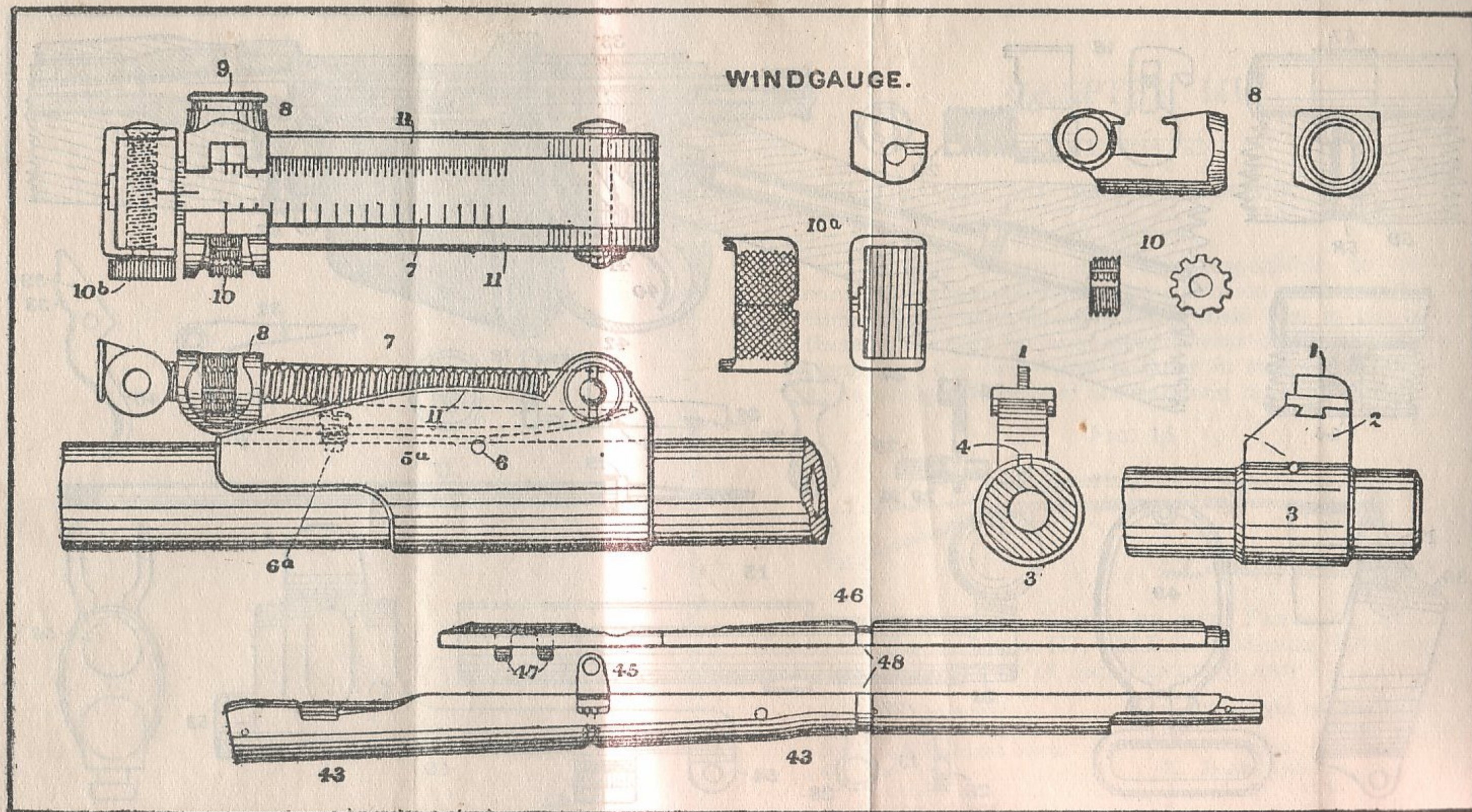


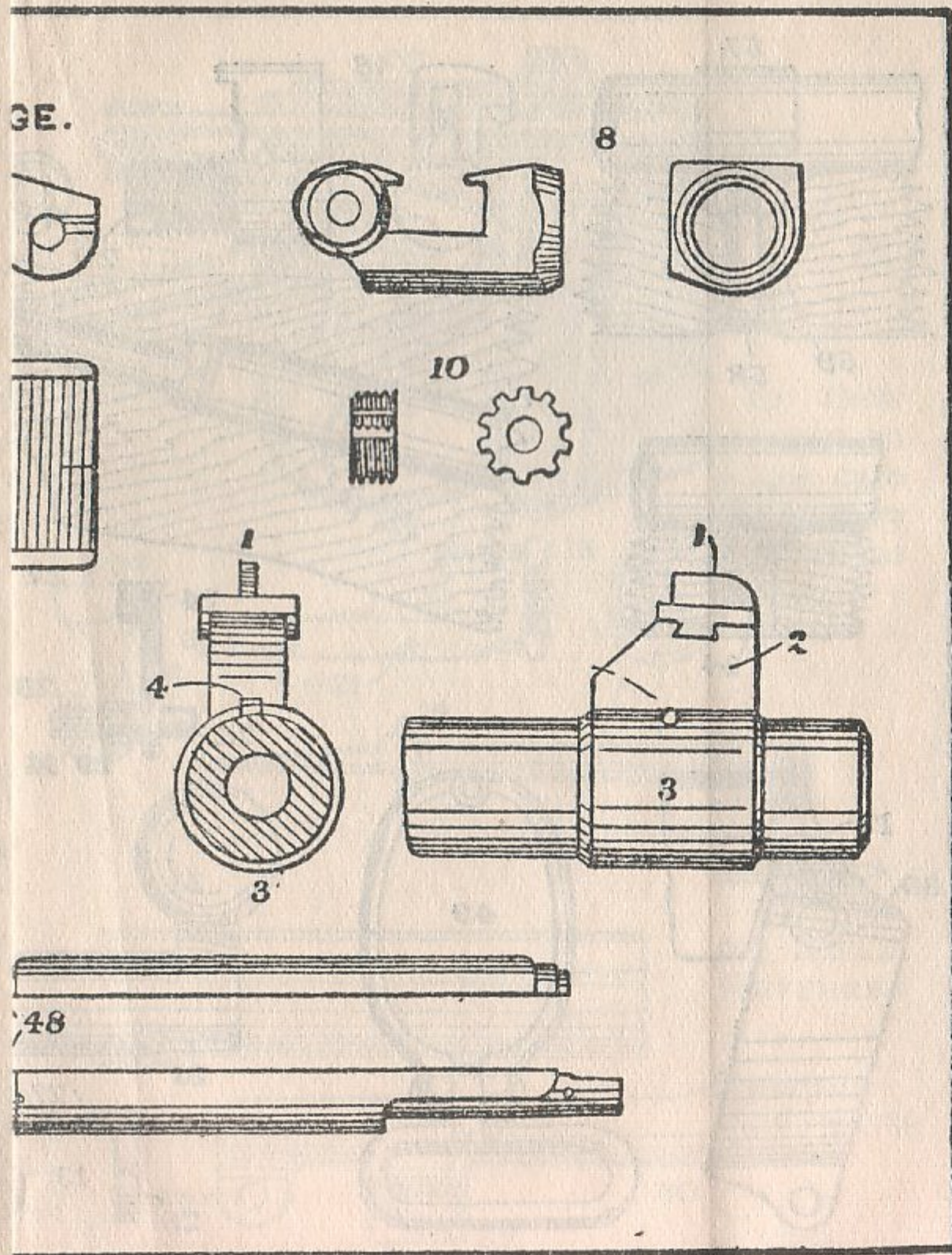
[Plate 7 on reverse



(For Key, see Sec. 16, 2)

[Plate 7 on reverse





- | | |
|---|--|
| 10. Backsight fine adjustment worm wheel. | 36. Full bent of cocking-piece. |
| 10A. Windgauge.* | 37. Short arm of sear. |
| 10B. " screw.* | 38. } Trigger ribs. |
| 11. Backsight ramps. | 39. } |
| 12. Seating for safety catch. | 40. Trigger. |
| 13. Safety catch. | 41. " axis pin. |
| 14. Locking bolt stem. | 41A. Magazine case. |
| 15. Bolt. | 41B. " platform spring. |
| 16. " head. | 41C. " auxiliary " |
| 17. Striker. | 42. Guard trigger. |
| 18. Cocking-piece. | 43. Stock fore-end. |
| 19. Striker collar with stud. | 44. Spring and stud fore-end. |
| 20. Bolt head tenon. | 45. Protector backsight. |
| 21. Cocking-piece locking recesses. | 46. Handguard, front and rear. |
| 22. Locking bolt. | 47. Spring handguard, rear. |
| 23. " " flat. | 48. Lower band groove. |
| 24. " " thumb-piece. | 49. Lower band. |
| 25. " " aperture sight stem. | 50. Noscap. |
| 26. Locking bolt stop pin recesses. | 51. Protector foresight. |
| 27. Locking bolt safety catch stem. | 52. Sword bar. |
| 28. Locking bolt safety catch arm. | 53. Boss for ring of sword bayonet crosspiece. |
| 29. Locking bolt screw threads. | 54. Swivel seating. |
| 30. Locking bolt seating. | 55. " piling. |
| 31. Bolt cam grooves. | 56. Noscap barrel opening. |
| 32. Sear. | 57. Inner band. |
| 33. " seating. | 58. " " screw. |
| 34. " spring. | 59. " " " spring. |
| 35. Magazine catch. | 60. Butt sling swivel. |
| | 61. Sword bayonet, pattern '07. Modified. |
| | 62. Bridge charger guide. |
| | 63. Cut-off. |

17. Mechanism

1. Elementary mechanism.—To ensure that the recruit will know how to remove and replace certain

* Many rifles are fitted with a fixed sight-cap in lieu of a wind-gauge.

parts of his rifle without damaging them in any way, he will receive instruction in this subject as soon as he has received a rifle. (Sec. 24.)

2. Instruction will be given in the following :—

i. Removing the *bolt*.

- (a) Raise the *knob* as far as it will go.
- (b) Draw back the *bolt head* to the *resisting shoulder*, and release it from the *retaining spring*.
- (c) Raise the *bolt head* as far as possible and remove the *bolt* by drawing it backwards.

ii. Replacing the *bolt*.

- (a) Ensure that the number on the *bolt* and on the right of the *body* of the rifle correspond and that the *safety catch* is forward.
- (b) See that the *resisting lug* and the *cocking-piece* are in one straight line and that the *bolt head* is screwed home.
- (c) Place the *bolt* in the *body* with the *extractor* uppermost and press it forward until the *head* is clear of the *resisting shoulder*.
- (d) Press the *bolt head* down until it is caught by the *retaining spring*.
- (e) Close the *breech*, press the *trigger*, and apply the *safety catch* with the forefinger, and with the remaining fingers ensure that the *bolt lever* is fully down.

iii. Removing the *magazine*.

Depress the *magazine catch* inside the *trigger guard* and withdraw the *magazine*.

iv. Removing the *magazine platform*.

- (a) Depress the rear end of the *platform* as far as possible, at the same time holding up the front end.
- (b) Pull the front end towards the rear end of the *case* until it passes under the *front lips*. The front end of the *platform* should then rise out of the *case*.
- (c) Tilt the rear end of the *platform* sideways, left side uppermost, and draw it forward out of the *case*.

v. Replacing the *magazine platform*.

- (a) Insert the rear end of the *platform* in front of the *rear lips* of the *case*, tilting it sideways so that the right side enters first.
- (b) Depress the rear end until the front end is below the level of the *front lips* of the *case*.
- (c) Press forward, guiding the front end through the *internal ribs* in the *magazine case*.

vi. *Half-cock* and how to *re-cock*.

The *trigger* cannot be pressed nor can the *bolt* be rotated until the action is placed at full-cock by drawing back the *cocking-piece*. After the *action* has been cocked, the *breech* will be opened to ascertain if the *chamber* is empty before the *trigger* is finally pressed and the *safety catch* applied.

3. **Advanced mechanism.**—Officers, warrant officers and N.C.Os. must have a thorough knowledge of the *breech mechanism* of their rifles. It is necessary that

they should know the different parts of the *bolt*, *striker*, etc., that move when the *bolt lever* is raised, drawn back, and so on. In teaching this subject, the *skeleton action* and dummy cartridges should be used, as by this means the young officer or N.C.O. will be able to see exactly what takes place on each movement.

4. *Action of the mechanism :—*

- i. On raising the *bolt lever*, the *bolt* is rotated to the left, thereby forcing the *stud* on the *cocking-piece* to move backward from the *long* to the *short groove* in the rear end of the *bolt*; this action withdraws the *striker* about one-eighth of an inch. At the same time, the *lug* on the under side of the *bolt* works down an *inclined slot* in the left side of the *body*, withdrawing the *bolt* about one-eighth of an inch and effecting primary extraction.
- ii. On opening and drawing back the *bolt*, the cartridge case is drawn out of the *chamber* by the *extractor* and is ejected. To ensure perfect ejection, an *ejector screw* is fitted on the left, inside the *bolt way*.
- iii. The *charger* containing five cartridges is placed between the *guides*, and the cartridges are forced into the *magazine* by the thumb.
- iv. On pushing the *bolt* forward, the *charger* is thrown out and the lower part of the *bolt head* engages behind the upper part of the base of the top cartridge in the *magazine* and pushes the cartridge into the *chamber*.

- v. During the forward movement the *full bent* of the *cocking-piece* is brought against the *nose of the sear*. The *cocking-piece* and *striker* are thus held stationary whilst the *bolt* travels forward, the *mainspring* being compressed between the *collar* of the *striker* and the rear end of the *mainspring chamber* in the *bolt*.
- vi. On turning the *bolt* to the right, the *breech* is finally closed by the *rib* on the *bolt* working over the *resisting shoulder* on the right side of the *body*; at the same time the *lug* on the *bolt* works into the *inclined slot* in the left side of the *body*.
- vii. On pressing the *trigger* the two *ribs* on the *trigger* bear in succession on the *lower arm* of the *sear* and produce a double-pull off; the first pressure bringing the *nose of the sear* to the bottom of the *bent of the cocking-piece*, and the second pressure finally releasing the *cocking-piece*; the *mainspring* then carries the *striker* forward, exploding the *charge*.
- viii. The shock of discharge is taken equally on either side of the *body*; on the right side by the *bolt rib* bearing against the *resisting shoulder*, and on the left by the *bolt lug* bearing against the *rear wall* of the *inclined slot*.

5. If the *bolt* has not been properly turned over when the *trigger* is pressed, one of two results will occur :—

- i. Either the *stud* on the *cocking-piece* causes the *breech* to close automatically by striking against

the rounded corner of the *divisional stud* between the *two grooves* of the *bolt*, causing the *bolt* to turn down and the *breech* to close ;

- ii. Or the *stud on the cocking-piece* strikes full against the *divisional stud* between the *two grooves*, and prevents the *striker* flying forward. If the *bolt* is then closed by hand, the whole *action* becomes locked as the *sear nose* is engaged by the *half bent*, which is under-cut, whilst the *cocking-piece stud* travels half-way down the *longer groove*. The result is that the *trigger* cannot be pressed, nor can the *bolt* be rotated, until the *action* is placed at full-cock by drawing back the *cocking-piece*.

6. Action of the safety catch :—

- i. If the rifle is fully cocked, on drawing the *thumb piece* to the rear, the *locking bolt* is rotated and becomes engaged in the forward *recess* of the *cocking-piece*; this withdraws the *full bent* of the *cocking-piece* from the nose of the *sear*. At the same time the *locking-pin* becomes engaged in the short groove. If the *cocking-piece* is in the fired position, and the *thumb-piece* is drawn to the rear, the *locking-bolt* becomes engaged in the rear *recess*, and the *locking-pin* in the short groove.
- ii. The *safety-catch* may be used when the *cocking-piece* is either at full-cock or in the fired position. When the *safety catch* is applied the *cocking-piece* cannot be moved backward or forward, nor the *bolt* be rotated. Care should

be taken to see that the *bolt lever* is as far down as it will go before applying the *safety catch*.

7. The undermentioned means of safety on the rifle will be explained :—

- (a) *Gas escapes*.
- (b) *Two studs* (on *bolt* and *cocking-piece*).
- (c) *Half-cock*.

18. Causes of wear

1. Wear in the *bore* of a rifle is caused by :—

- i. Friction of the bullet.
- ii. Erosion, or the wearing away of the surface of the *bore* by propellant gases.
- iii. Friction due to cleaning materials.
- iv. Fouling.

2. **Fouling.**—In order that the instructions for cleaning may be understood, the causes of fouling are to be explained to the man. Fouling may be of three kinds :—

- i. **Corrosive.**—The forcing into intimate contact with the metal of the products of combustion of the propellant and cap composition. This type shows itself in *sweating* or the appearance of a dark deposit on the surface of the *bore*, which promptly sets up rust.
- ii. **Metallic.**—Particles from the surface of the envelope of the bullet adhering to the surface of the *bore*. These appear in irregular streaks or patches on the *lands* and in the *grooves* toward the muzzle end. Metallic fouling

may cause the rifle to shoot inaccurately, and its presence should be suspected when, for no apparent reason, a rifle, which normally shoots well, becomes inaccurate. No attempt must be made by the man to remove this form of fouling. The rifle should be taken to the armourer.

- iii. **Superficial.**—Caused by the deposit in the *bore* of the solid products of the charge and of the cap composition. This always arises after firing, especially after using blank.

19. Care and cleaning

1. When properly cared for, 5,000 to 6,000 rounds can be fired from a rifle before it becomes unserviceable. To prevent unnecessary wear caused by too frequent use of the gauze, the instructions for cleaning will be strictly adhered to. Should it be found necessary to modify these instructions to suit local climatic conditions, the guiding principles must not be departed from.

2. When the rifle is not in use, the *leaf* and *slide* of the *backsight* will be lowered.

3. The *mainspring* should never be allowed to remain compressed except when the rifle is loaded. The position of the *cocking-piece* shows whether the *main-spring* is compressed or not.

4 The *magazine* must not be removed from the rifle except for cleaning purposes or as laid down in Sec. 29, 3, and, to avoid weakening the spring, cartridges should only be kept in it when necessary.

5. The *bolts* of rifles are not to be exchanged, as the use of the wrong *bolt* may affect the accuracy of the rifle. Each *bolt* is carefully fitted to a particular rifle, so that the parts which take the shock of the explosion have an even bearing. The number stamped on the *bolt lever* should agree with that stamped on the *right front* of the *body*.

6. No N.C.O. or man is permitted to take to pieces any portion of the action except as prescribed for cleaning, nor is he to loosen or tighten any of the screws.

7. In dusty climates the action will be kept dry, and a cover made of khaki or other suitable material should be used to protect the *muzzle* and *bolt*. Anything in the nature of a plug for the *bore*, however, is forbidden.

8. Cleaning materials :—

- i. The **pull through**, which will be kept in the *butt trap* of the rifle, is provided with three loops. The first loop, the one nearest the weight, is for the wire gauze, the second for the flannel-ette, and the third for the purpose of removing the *pull-through* should it break or get jammed in the *bore*. Before use it is important to see that the weight is not bent. The cord should be run through the fingers to straighten it out and remove any grit.

(a) The *pull-through* will be drawn through the *barrel* from *breech* to *muzzle* in one continuous motion.

- (b) The cord must be drawn straight through and not allowed to rub against the *muzzle* of the *bore*, otherwise it will cause a groove to be worn where it rubs; this is known as "cord-wear," and affects the accuracy of the rifle.
- (c) The *pull-through* will be packed in the *butt trap* as follows:—Hold the *pull-through* (loop end) between the forefinger and thumb, so that the end falls about two inches below the third finger; roll it loosely three times round the fingers. Slip the coil off the fingers, and twist the remainder of the cord tightly round it, leaving sufficient to allow the *weight* to drop easily into the recess made for it in the *butt*. Push the cord into the *trap*, leaving the loop end uppermost, and close the *trap*.
- (d) If a jam occurs with the *pull-through*, the soldier must not attempt to remove the obstruction, but the rifle will be taken to the armorer.
- ii. **Oil.**—Service oil is carried in the oil bottle for which a recess in the *butt trap* is provided. No other form of lubricant is to be allowed to remain in the *bore*. Paraffin, though an effective agent for removing rust, will not prevent it.

- iii. **Flannelette.**—No other form of material will be used for cleaning the *bore*. For cleaning or drying the *bore* after firing, a piece of flannelette, 4 inches by 2 inches, will be used. It will be placed in the second loop of the *pull-through* and wrapped round the cord. For oiling the *bore* a slightly smaller piece of flannelette, 4 inches by $1\frac{1}{2}$ inches, will be used. If the piece used is too big, the oil will be scraped off as it enters the *bore*. The oil should be well rubbed, with the fingers, into the flannelette.
- iv. **Stick, cleaning chamber,** made of wood about a foot long; at one end a slot is cut, the other end is cut square to allow a grip to be taken and the stick to be turned by hand. A piece of dry flannelette is placed in the slot and wound round the stick (to ensure that the stick is covered). The stick is then passed through the boltway into the *chamber* and turned round several times. This is the only effective method of cleaning the *chamber*.
- v. **Wire gauze,** in pieces $2\frac{1}{2}$ inches by $1\frac{1}{2}$ inches, is supplied, and, except on active service, should only be used with the permission of an officer for the purpose of removing hard fouling or rust. In attaching it to the *pull-through* the following method will be adopted:—

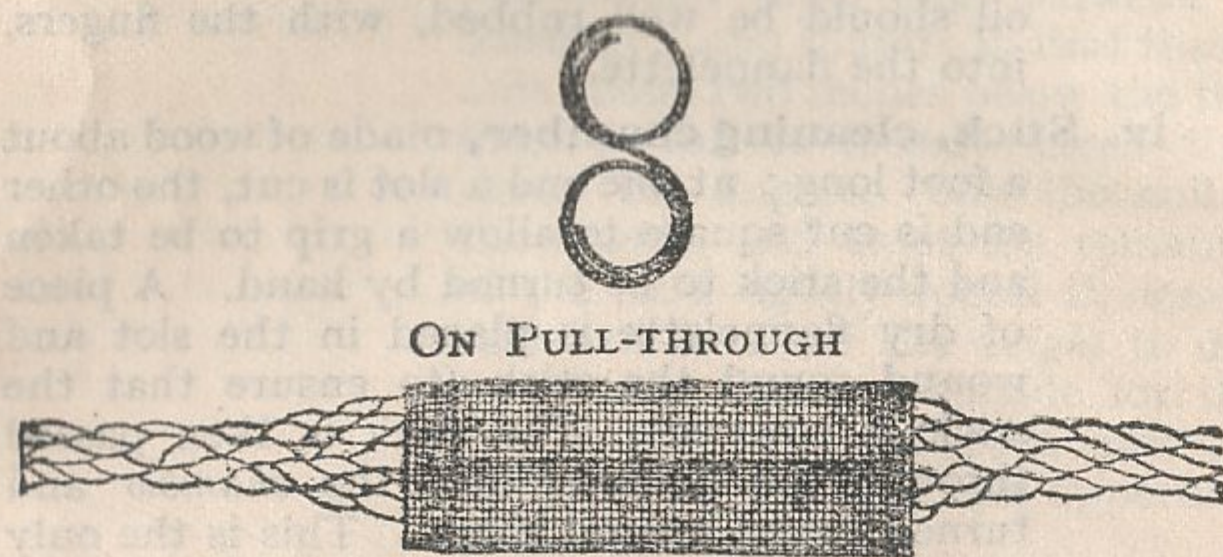
- (a) Fold the gauze as in Fig. 15 so that the longer sides take the form of an "S."

c

- (b) Open the first loop of the *pull-through* and put one side of it in each loop of the "S."
- (c) Then coil each half of the gauze tightly round that portion of the cord over which it is placed until the two rolls, thus formed, meet.

FIG. 15

WIRE GAUZE FOLDED (Section)



The gauze must be thoroughly oiled before use, and care taken to ensure that there are no loose strands of wire which may scratch the *bore*. The gauze should fit the *bore* tightly and will, if necessary, be packed with a small piece of flannelette or other soft material to ensure it so fitting. The gauze should not be allowed to remain on the *pull-through* except on active service, when it will provide the normal means of cleaning the *bore*.

9. No material other than that issued from store is

to be used in cleaning the rifle, and the use of cutting or gritty materials such as emery powder or bath-brick is forbidden. Care should be taken to prevent any unnecessary rubbing of the browned portions of the rifle, since the browning is a preventative against rust.

10. The following points in connection with the correct cleaning and care of rifles should be thoroughly understood by every man :—

- i. Boiling water is an effective method of removing fouling. Its action is to dissolve the harmful matter in the products of combustion which can then be removed by the flannelette on the *pull-through*. This method should always be used when possible.
- ii. Superficial fouling can be readily removed when the *barrel* is still warm by the use of the flannelette on the *pull-through*, but if allowed to remain in the *bore*, it will harden and turn to red rust; to remove this it may be necessary to use the wire gauze.
- iii. The surest method of preventing rust is to remove the fouling immediately after firing and before it has time to harden and form rust, and to keep the interior of the *bore* covered with a film of oil, which prevents the moisture of the air reaching the steel. **Barrels will therefore always be kept slightly oily except :—**
 - (a) Immediately before firing.
 - (b) At inspection in barrack rooms, when dry barrels may be ordered.

- iv. Rust attacks a rough surface more readily than a smooth one, and consequently a *bore* that has once become rusty will require more care than one that has been carefully looked after.

11. Before cleaning the rifle, the *bolt*, *magazine*, and *slings* will be removed and placed in a clean spot.

i. **Daily cleaning.**—The *bore* will be pulled through daily with a piece of oily flannelette. The exterior of the rifle and bayonet will then be cleaned with an oily rag, and all particles of dirt or dust removed from the gas escapes and crevices. The frictional parts will be oiled. Daily cleaning for a period of four or five days after firing, or when specially ordered, will be as above, except that the *bore* will be pulled through with dry flannelette until clean, and then immediately re-oiled.

ii. **Cleaning before firing.**—The *bore* will be thoroughly cleaned and all traces of oil removed; the *action* will be wiped with an oily rag, care being taken to see that the face of the *bolt* is free from oil and that the *gas escapes* are clear. Ensure that the *magazine spring* is in good order. In sandy or dusty countries the *bolt* should be dry. The cartridges and *chamber* will on no account be oiled before firing, nor will any lubricant be used with a view to facilitating extraction, as such procedure is liable to injure the rifle.

iii. Cleaning after firing.—

- (a) Remove all superficial fouling from the *bore*.
- (b) Pour about 5 or 6 pints of boiling water through the *bore* from *breech* to *muzzle*, using a funnel.
- (c) Thoroughly dry and clean the *bore* and proceed to clean the rest of the rifle, thus allowing the *bore* to cool.
- (d) The *breech* will be cleaned with a stick, cleaning chamber.
- (e) Special attention will be paid to the face of the *bolt*, *gas escapes* and *bayonet boss*.
- (f) If bayonets have been fixed during firing, the bayonet will be carefully wiped before it is returned to the scabbard.
- (g) All metal parts, including the *magazine platform* will be carefully wiped and oiled, and the interior of the magazine wiped. After this, the *barrel* will be pulled through with a piece of oily flannelette.
- (h) On active service, where boiling water is unlikely to be available, the wire gauze will be used.
- (j) If the rifle cannot be cleaned at once, the *bore* should be oiled and proper cleaning carried out at the first opportunity.

iv. **Cleaning after firing blank or ballistite.**

—After firing blank ammunition, including ballistite, special care should be taken that the cleaning is thorough. Although in this case there is no friction between bullet and *bore*, and no internal fouling or "sweating," there is greater accumulation of superficial fouling from blank than ball cartridge, because there is no bullet in blank ammunition to scour the fouling left by the preceding round. The firing also is in most cases more prolonged, and a greater interval must usually elapse before the rifle can be thoroughly cleaned. Under such conditions cleaning will be as for *after firing*. When blank firing precedes practice with ball, the rifles will be carefully cleaned before ball practice commences. The cleaning will then be as for *before firing*.

v. **Cleaning after firing tracer ammunition.**—

After firing tracer ammunition the rifle must be cleaned as after firing ball.

vi. **Cleaning .22-inch rifles.**—In order to avoid damage to the *bore* of these rifles when cleaning, and thus preserve the high accuracy necessary for training, the following instructions will be strictly adhered to :—

- (a) The *rod*, *brush* and *cleaner* will always be inserted from the breech end so that the muzzle end of the *bore* cannot be damaged by the friction of the *rod*

- (b) The *bore* should be cleaned after firing 60 rounds (*not oftener*) with the *rod* and *cleaner* with a strip of flannelette $\frac{1}{2}$ -inch wide in the eye.

- (c) On the conclusion of firing, the *rod*, with *brush* attached, should be passed up and down the *bore* a few times; then remove the *brush* and attach the *cleaner* with strip of flannelette $\frac{1}{2}$ -inch wide in the eye; this will be passed up and down the *bore* in a similar manner, the flannelette being replaced until the *bore* is rag clean. After cleaning, the *bore* should be lubricated by using a $\frac{1}{8}$ -inch wide strip of flannelette well soaked in oil. This oil should be removed with dry flannelette before firing is again commenced.

- (d) The *brush* should be frequently cleaned with paraffin to free it from fouling.

Care should be taken that the *rod*, *brush* or *cleaner* are neither bent nor allowed to come in contact with dust or grit, as carelessness in this respect will cause friction and damage the *bore*.

20. *Examination of arms*

1. It is necessary for all officers and N.C.Os. to possess competent knowledge of the inspection and care of rifles.

2. Commanding officers will therefore arrange that young officers are instructed by the regimental armourer in repairing simple faults likely to occur in the field with such tools as would be available, and in the examination of the various components as detailed below.

3. The various components of the rifle will be examined as follows :—

- i. The interior of the *barrel* for rust, cuts, bulges, bends and fouling.
- ii. The *foresight*; that the *blade* is not deformed and that the *nose-cap* is not loose.
- iii. The *backsight leaf*, for firmness of the joint; that it is not bent; that the *slide* moves smoothly; that the *thumb-piece* and *fine adjustment worm* work freely and engage in the *rack* on the side of the *leaf*; and that the *U* is not deformed.
- iv. The *magazine*; that it is not dented, and that the *platform* works freely; also *magazine catch* and *auxiliary spring*.
- v. The *bolt*; that it bears the same number as the *body*; that the *striker* is not screwed beyond the end of the *cocking-piece*; also that the *striker keeper screw* is not broken and is in its proper position, and that the *bolt* works smoothly.
- vi. The *striker point*; that it is the correct shape and projects sufficiently through the face of the *bolt-head*; also *extractor* and *spring*.

- vii. The *sear*; that it holds the *cocking-piece* back securely when the bolt is driven forward sharply to the closed position.
- viii. The *cocking-piece*; for firmness on the striker, that the *bents* are in good condition.
- ix. The *safety catch* and *locking bolt*; that the *safety catch* engages in the *camway* of the *bolt* and locks it; that it does not move too easily; and that the *cocking piece* is withdrawn slightly to the rear when the *locking bolt* is applied, whether it is at "full cock" or the "fired" position.
- x. The *cocking-piece* and *striker*; that they fly forward freely on pressing the *trigger*. Test the two pressures of the latter.
- xi. The *stock*, *fore-end*, and *butt*; general condition, and *butt* not loose.

4. The action to be taken in the event of any rifle or ammunition being found defective is laid down in Vol. IV.

Commanding officers will report in the regimental annual return any defects in the rifles or ammunition on their charge which have not been satisfactorily remedied.

21. Care of small arm ammunition

1. Miss-fires.—A miss-fire arises from :—

- i. A defective cartridge.
- ii. A defective rifle.

In case i., the cartridge will be tried in another rifle and, if it still fails to fire, a report will be made in accordance with the instructions contained in

King's Regulations. In case ii., the rifle will be taken to the armourer for examination.

2. **Storage of ammunition.**—Ammunition should be kept perfectly dry and clean, and should not be exposed to extremes of temperature. **In no circumstances will dummy cartridges be kept in, or issued from, the same store as that used for ball or blank ammunition.**

3. No cartridges, whether ball, blank, miniature or dummy, other than those supplied by Government may be used in service rifles.

4. In making reports on defective small arm ammunition, in accordance with King's Regulations, the following definitions will be used :—

- i. Burst cases.
- ii. Separations.
- iii. Split cases.
- iv. Fluted cases.
- v. Blowbacks.
- vi. Miss-fires.
- vii. Pierced caps.

5. Burst cases, as distinguished from separations, may be of two kinds, viz., circumferential or longitudinal, and in reporting them, their position, whether in or above the base, should be clearly stated.

6. Separations are failures which are due to the case being stretched on firing, owing to excessive backward play of the *bolthead* in the rifle or to defective ammunition. Separations may be partial or complete, and may take

place in any part of the case. They are distinguished from bursts by the fact that the torn edges of the metal are not fused. In case of doubt as to whether the casualty is a "burst" or a "separation," the rifle should be overhauled.

7. Split cases are those which burst at the *neck* or *shoulder*.

8. Fluted cases are those in which the powder gas has penetrated between the neck of the *case* and the walls of the *chamber* and has forced the metal inwards.

9. A blowback is an escape of gas between the cap and the sides of the *cap chamber*. This term is not to be used to denote an escape of gas due to bursts or other causes.

10. A pierced cap is a complete perforation of the cap, the pressure in the *cap chamber* driving back the *striker* and with it a small disc of cap metal.

11. The instructions in this section apply to all small arm ammunition.

22. Jams

1. If the rifle and ammunition are correctly handled and properly cared for, *jams* should be of rare occurrence. When one does occur, the cause will almost invariably be found to be due to some neglect or faulty manipulation on the part of the man. The most common causes by which *jams* are brought about are :—

- i. Faulty manipulation of the *bolt*.
- ii. Dirt or oil in the *magazine*.
- iii. Dirty, damaged, or defective ammunition.

iv. Some mechanical defect, such as worn or damaged parts.

2. Types of jams and remedies :—

i. No round enters the *chamber*.

To remedy :—

(a) Draw back the *bolt*.

(b) Press rounds well into the *magazine*, releasing them suddenly.

(c) Tap the bottom of the *magazine* sharply.

If the failure recurs, the rifle should be examined by an armoured.

ii. Bullet enters the *chamber* obliquely.

To remedy :—

(a) Draw back the *bolt*.

(b) Pull back the round with the forefinger and push the round back into the *magazine*.

iii. Two rounds side by side in the *magazine*.

To remedy :—

Push one round down sharply with the forefinger.

iv. Damaged *lips* of *magazine*.

To remedy :—

Take the *magazine* to the armoured.

To remedy on active service :—

Remove the *magazine*, and, with a round of S.A.A., lever up the *lips*.

v. Badly filled *charger*.

To remedy :—

(a) Remove the rounds from the *charger* and refill.

(b) On active service reload with a complete new *charger*.

vi. Rifle half cocked.

To remedy :—

Pull back the *cocking-piece*.

vii. Miss-fire.

To remedy :—

Reload. If miss-fire recurs, examine *striker*.

viii. Empty case remaining in the *bolt way*.

To remedy :—

Remove by turning the rifle over to the right.

23. *Protection of weapons and equipment from gas*

1. If weapons or equipment have been splashed with mustard gas, chloride of lime may be used to de-contaminate them. Any dirt should first be removed, and the surface to be cleaned will be sprinkled with a thin layer of chloride of lime. This should be washed off after 15 to 20 minutes and the object rinsed thoroughly with water. Parts which cannot be treated with the dry powder should be covered with a paste of chloride of lime, which should afterwards be washed off as described above. Any delicate parts of the mechanism, *sights*, *breech*, etc., which would be injured by chloride of lime, should be cleaned by polishing with dry rags. These must be buried after the operation and not burnt.

All cleaned parts should be dried and re-oiled. Men detailed to clean weapons and equipment suspected of contamination with mustard gas must wear respirators and protective gloves.

2. Certain gases have a corrosive action on metals. This action is greatly assisted by moisture, which dissolves and retains the gas, so that corrosion continues until the surface is cleaned. Metal surfaces which are covered with mineral oil are not affected, provided they are cleaned and re-oiled after exposure. The following precautions should be taken :—

- i. Weapons should be kept oiled, and, after exposure to gas, should be cleaned and re-oiled.
- ii. Ammunition boxes should be kept closed. In position warfare, ammunition should be stored in shelters or recesses in the parapet, protected by a moistened curtain.

3. *Action during an enemy gas attack.*—The troops armed with the rifle will maintain a slow rate of fire, and occasional short bursts will be fired from light automatics to ensure that all weapons are in working order.

Troops in positions where it is not possible or advisable to fire, *e.g.*, local and general reserves, if in the area affected by gas, should occasionally move the working parts backwards and forwards.

4. *Action after a gas attack :—*

- i. All weapons must be cleaned after a gas attack. Oil cleaning will prevent corrosion for 12 hours, but the first opportunity must be taken to clean all parts in boiling water containing a little soda

- ii. S.A.A. must be carefully examined. All rounds affected by gas must be replaced by new cartridges immediately. They will be cleaned and re-issued immediately so that they can be fired at the first suitable opportunity.

24. *Lessons and sequence of instruction*

LESSON 1.—RECRUIT'S INITIAL LESSON

To be taught immediately recruits have received their rifles.

- i. With squad seated round table, state object of lesson :—

To ensure that recruits will be able to look after their rifles so that when handling them in their barrack rooms they will not develop faulty methods.

- ii. Teach the recruits how to recognize their own rifles :—

- (a) By the numbers on the rifle.
- (b) By colour of woodwork, etc.

- iii. *Elementary mechanism.*—Demonstrate and explain the undermentioned, recruits imitating each movement except (e), which will not be practised :—

- (a) How to remove *bolt* and *magazine*.
- (b) How to remove the *magazine platform*.
- (c) How to replace the *magazine platform*.
- (d) How to replace the *bolt* and *magazine*.
- (e) The *half-cock*, how to *re-cock* and place rifle at safety.

Squad practises. Instructor checks faults

iv. Teach :—

- (a) Loading and unloading (Sec. 29).
- (b) Charging magazines (Sec. 29).
- (c) Trigger pressing (Sec. 29).

v. *Daily cleaning*.—Demonstrate and explain as in iii. :—

- (a) How to remove *oil bottle* and *pull-through* from *butt trap*.
- (b) Removal of *bolt* and *magazine* and placing in clean place.
- (c) Examination of *pull-through*, three loops, weight, etc.
- (d) *Flannelette*, size of, oiling and attaching to *pull-through*.
- (e) Pulling rifle through.
- (f) Cleaning outside of rifle and bayonet, instructor naming main parts of rifle as he comes to them.
- (g) Replacing *oil bottle* and *pull-through* in *butt-trap*.
- (h) Give general points, Sec. 19, 1 to 7 and para. 9.

vi. Issue and explain upkeep of **Record Books** (Sec. 5).**LESSON 2.—FURTHER CLEANING, MATERIALS AND WEAR**i. *Materials* :—

- (a) *Gauze*—when used.
- (b) „ how used.

Squad imitates instructor in (b).

(c) *Stick, cleaning chamber*.—Explain and demonstrate how used.

- ii. *How to examine the bore*.—Hold the eye close to the muzzle and look into the *bore* but not through it; gradually draw the eye back, looking for rust, cuts and fouling. Look from breech end to examine *chamber*.

Squad practises.

iii. *Causes of wear*.iv. *Fouling*.**LESSON 3.—CLEANING BEFORE AND AFTER FIRING**

- i. Care of rifle (general points), Sec. 19, 10.
- ii. Before firing.
- iii. After firing.

LESSON 4

- i. *Jams*.—Instructor demonstrates and explains their cause and remedy.
- ii. Protection against *gas*.

LESSON 5.—ELEMENTARY MECHANISM
(Trained Soldiers)

- i. Elementary mechanism.—Brought out by *question* and *answer*, and by making squad perform actions as taught in Lesson 1.

LESSON 6.—ADVANCED MECHANISM

(Officers, Warrant Officers, and N.C.Os. only)

Instruction to be by *question* and *answer* as far as possible.

Stores required.—Skeleton action and a dummy cartridge without bullet.

- i. With dummy in chamber teach what happens on raising *bolt lever*.
- ii. What happens on drawing back *bolt*.
- iii. What happens on pushing *bolt* forward, including loading with new *charger*.
- iv. What happens on turning *bolt* to the right.
- v. What happens on pressing the *trigger* :—
 - (a) Two pressures.
 - (b) Shock of discharge—how taken.
- vi. Teach *half-cock* and other safety devices.
- vii. Teach action of *safety-catch*.

LESSON 7.—EXAMINATION OF ARMS

(Officers, warrant officers, and N.C.Os. only)

AIMING INSTRUCTION

25. General

1. The object of all aiming instruction is to teach men to aim correctly at any object, however difficult to see. Each lesson will be repeated as often as necessary until the man is proficient, before proceeding to a more advanced one.

2. Care will be taken that the *sights* of any rifle used in aiming instructions are in perfect order.

3. The aiming mark in the earlier stages will be a *grouping target* placed at a distance not exceeding 100 yards. When the habit of accuracy has been acquired, service targets will be used. Experience should compensate for the increased difficulty of aiming at targets

of this shape and comparative invisibility, so that the degree of accuracy ought to be maintained.

4. The instructor will inspect the *sights* frequently to ensure that they are adjusted in accordance with his orders.

5. The most common faults in aiming are :—

- i. Taking too much, or too little, foresight into the "U" of the backsight, causing the bullet to strike high or low respectively.
- ii. Inaccurate centring, *i.e.* failure to get the blade of the foresight in the exact centre of the "U" of the backsight. This inaccuracy will deflect the muzzle of the rifle to the side on which the line of aim is taken, *e.g.*, if aim be taken over the right edge of the "U," the bullet will strike to the right of the mark.
- iii. Fixing the eye on the foresight and not on the object. If the eye is focused on the foresight only, the firer will retain only a blurred image of the target and inaccurate shooting will result.
- iv. Inclining the backsight to one side. This will cause the bullet to strike low, and on the side to which the sights are inclined.

6. To illustrate principles or check faults a free use will be made of large diagrams on paper, blackboard or ground ; by practical illustration with the rifle, and by the use of suitable appliances.

26. *Lessons and method of instruction.—Stationary targets*

LESSON 1.—ACCURACY OF AIM

1. *Preliminaries.*

i. Arrange for following to be available and placed where required :—

(a) Grouping target at 100 yards and small, large, and silhouette figure targets, 200 to 600 yards.

(b) Aiming rests, tripods, sandbags.

(c) Paper and pencil.

ii. Inspect rifles, dummies and pouches. Loosen slings. Ascertain that sights are in good order.

iii. State object of all aiming instruction.

Stage 1.—Adjustment of sights

2. *Sequence of Instruction.*

i. State that sights are placed on the rifle in order to give both direction and elevation.

ii. Using a diagram, show a correct aim.

iii. Illustrate elevation with two rifles by removing bolts and laying aims—sights being adjusted to 200 and 1,000 yards respectively. Let each man view aims and look through the bores, instructor bringing out the following :

(a) Sights 200—Sights and bore are pointing at the mark.

(b) Sights 1,000—Sights on mark, barrel elevated to allow for fall of bullet.

iv. Demonstrate and explain how to adjust sights :

(a) **To adjust the backsight.**

Hold the rifle in the loading position so that the lines on the *backsight* can be clearly seen. Press in the *stud* on the side of the *slide* with the left thumb ; move the *slide* until the line is even with the graduation on the *leaf*, giving the elevation for the distance named. Be careful that it is firmly fixed.

(b) **To adjust the slide.**

If, when the *sights* are set at 200 yards, it is found that the line on the *slide* does not exactly coincide with the graduation on the *leaf*, then adjust it by the following method. Press the *stud* on the *slide* with the thumb of the left hand until the *worm wheel* can be easily revolved ; turn the *worm wheel* with the thumb-nail of the right hand, until the lines coincide. The *stud* must not be pressed to such an extent that the *worm wheel* is entirely disengaged from the *rack*.

v. Squad imitates instructor in adjusting backsight and checking to see if slide is firmly fixed.

vi. Each man practises individually. The instructor checks every man in turn, insisting on the firm adjustment of the slide.

vii. Practise squad in sight adjustment by word of command :—“ . . . **hundred** ” or, “ **three fifty,** ” etc.

Stage II.—Aiming at a grouping target at 100 yards**3. Sequence of Instruction.**

- i. State object, *i.e.* how to take a correct aim.
Emphasize need for extreme accuracy.
- ii. Explain the three rules of aiming :
 - (a) The backsight must be kept upright.
 - (b) The left eye (if, as is normal, the man shoots from the right shoulder) must be closed. In the opposite case the right eye must be shut.
 - (c) Aim will be taken by aligning the *sights* on the lowest central portion of the mark, the top of the *foresight* being in the centre of, and in line with, the shoulders of the "U" of the *backsight*. With the *sights* thus aligned, focus the aiming mark.*
- iii. Demonstrate how to take an aim and explain :
 - (a) Elbow and head rested.
 - (b) Eye over the heel of the butt.
 - (c) Look at the mark.
- iv. Let each man view the aim.
- v. Teach men how to arrange appliances.
- vi. Men lay aims, instructor checks, dealing with faults as they occur.

* When using the aperture sight, aim will be taken as follows :—
Look through the aperture at the mark, align the top of the foresight on the lowest central portion of the mark, the point of contact thus made being in the centre of the aperture. When the sights are thus aligned focus the aiming mark.

- vii. Give reasons for aiming at the lowest central portion of the mark :
 - (a) Whole object is kept in view.
 - (b) Better chance of hitting a vanishing target.
 - (c) Counteracts tendency to shoot high.
 - (d) Assists close grouping, especially in collective fire.
- viii. Give reasons for taking a "full sight" :
 - (a) Less chance of varying amount of foresight.
 - (b) Facilitates a rapid aim.
- ix. Give reasons for focussing the aiming mark and sights in the order :—*aiming mark*, *backsight*, *foresight*, *aiming mark*. Counteracts tendency to blur the mark by focussing the sights instead of the mark.
- x. Give further practice in taking aim as necessary.

4. When checking an aim laid by a man, the instructor must always get his eye in the correct position and rest his head. If the aim is found to be incorrect, make the man look at it again ; if he sees it is wrong, let him lay another, but if he still thinks it is correct the instructor must convince him that it is incorrect. This may be done by the instructor holding a piece of white paper in front of the *muzzle* ; the man, who must be in the correct position, is then told to get the tip of the *foresight* in line with the shoulders and in the centre of the "U"

of the *backsight*. The paper is then removed quickly, and replaced after a short pause, when the man is asked where his aim was.

Stage III.*—Aiming at Small and Large targets and Silhouette Figure targets at from 200 to 600 yards

5. Sequence of Instruction.

- i. State object: *i.e.* to practise aiming at classification and service targets at the actual distances at which they will be used.
- ii. Instructor lays a correct aim.
- iii. Each man views aim.
- iv. Men lay aims, instructor dealing with faults as they occur.
- v. Discuss results to be anticipated from faults commonly made in aiming:
 - (a) Inclined sights; illustrate.
 - (b) Inaccurate centring of foresight.
 - (c) Varying the amount of foresight.
 - (d) Focussing the sights instead of the mark.

Point out that, when firing on the range, (b), (c), and (d) can only be detected from the results obtained in shooting. Illustrate (b) and (c) with paper method if necessary (*see para. 4 above*).

- vi. Give further practice in laying aims as necessary.

* The *aiming mark* when firing at an upright figure, either stationary or moving, at a range of 200 yards or less, will be the waistline.

LESSON 2.—AIMING OFF FOR WIND

1. Preliminaries.

- i. Arrange for following to be available and placed where required:—

- (a) Aiming rests, tripods and sandbags.
- (b) Paper screen for use at ten yards with fixed aiming mark through the lowest visible portion of which a horizontal line has been drawn. This line is to enable the instructor to ascertain if elevation has been correctly maintained, and must not be visible at ten yards' distance. Vertical lines visible at ten yards will be drawn from one to two inches on either side of the mark.
- (c) Pins and one-inch auxiliary aiming marks for use at ten yards.
- (d) Classification and silhouette targets as necessary. Auxiliary aiming marks.
- (e) Aiming stick.
- (f) One or more assistants.

- ii. Inspect rifles, dummies and pouches. Loosen slings.

Stage I.—Preliminary

2. Sequence of Instruction.

- i. Explain necessity for aiming off. Quote examples, such as taking a "corner" in a football match on a windy day.

ii. How to recognize *strength* and *direction* of wind from :

- (a) Personal experience.
- (b) Effect on trees and grass.

iii. How to calculate the allowance required for a prevailing wind from the following Table :—

WIND TABLE

Strength of of Wind	Ranges				
	200	300	400	500	600
	Allowances*				
Mild 10 m.p.h.	6 in.	Double allowance at 200	Treble allowance at 200	Four times allow- ance at 200	Five times allow- ance at 200
Fresh 20 m.p.h.	1 ft.				
Strong 30 m.p.h.	1½ ft.				

* Halve these allowances for *oblique* winds.

iv. How to judge what the above allowances look like at the target.

v. Teach sizes of targets :

(a) Small target, 4 ft. × 4 ft.—

<i>Bull</i>	<i>Inner</i>	<i>Magpie</i>	<i>Outer</i>
12 in.	24 in.	36 in.	48 in.

Large target, 6 ft. × 6 ft.—

<i>Bull</i>	<i>Inner</i>	<i>Magpie</i>	<i>Outer</i>
24 in.	36 in.	48 in.	72 in.

When aiming off on these targets measurements will be in feet from the lowest central portion of the mark.

Show signals for *Bull*, *Inner*, *Magpie*, *Outer* and *Miss*.

(b) Snapshooting targets (100–300 yards).

Small...12 inches diameter.

Large...22 inches diameter.

(c) Silhouette figure targets (200–600 yards).

Average width—18 inches.

In the case of (b) and (c), measurements will be in *target breadths* from the edge of the target.

Stage II.—Practice at small aiming marks at 10 yards

- i. Squad aim at an *auxiliary aiming mark*; instructor checks as in **Lesson 1**.
- ii. Explain, using diagram, how elevation is kept by the tip of the foresight being in line with the shoulders of the "U" of the backsight and the mark resting on the shoulder.
- iii. Remove *auxiliary aiming mark* and let squad view the relation of the *sights* to the *stationary aiming mark*.
- iv. Squad practises, aims being taken at visible lines drawn on either side of the mark.
- v. Instructor pins up *auxiliary aiming mark* to check aims and to emphasize importance of maintaining elevation.
- vi. Give further practice as required.

Stage III.—Practice at service ranges

3. When men are efficient in maintaining elevation and have a working knowledge of the wind table and of target dimensions, they will be given practice at longer ranges with both classification and figure targets. Instructors, when checking aims laid off, will always emphasize the necessity for elevation to be correctly maintained. Lateral errors of six inches on either side of the correct point of aim may be overlooked, but any loss or gain in elevation will be corrected.

4. Sequence of Instruction, Classification targets, 200 to 600 yards.

- i. An assistant at target, commencing at 200 yards, places the *auxiliary aiming mark* one foot left or right.
- ii. Squad lays aims—instructor checks—faults corrected.
- iii. Auxiliary removed and men view aims to observe what aiming off one foot looks like.
- iv. Squad practises aiming off a definite number of feet at *small* and *large* targets at ranges up to 600 yards.
- v. Aims checked by auxiliary aiming mark.
- vi. Squad given further practice in aiming off for different winds at varying ranges.

5. Sequence of Instruction, Silhouette Figure targets, 200 to 600 yards.

- i. An assistant at target, commencing at 200 yards, places *auxiliary figure* one breadth right or

left. Outer edge of auxiliary is then marked by a stick, and auxiliary is removed.

- ii. Squad aims at the stick—instructor checks, and faults are rectified. *Then stick is removed.*
- iii. Squad views aim to see what one breadth at 200 yards looks like.
- iv. The squad should be reminded that ability to aim off accurately is essential when engaging such targets on the battlefield.
- v. Squad practises aiming off a definite number of target breadths, 200 to 600 yards.
- vi. Squad given further practice in aiming off at from 200 to 600 yards for different winds at varying ranges.

LESSON 3.—ELEVATION AND AIMING UP AND DOWN

1. Preliminaries.

- i. Arrange for the following to be available and placed where required :—
 - (a) Stage I—blackboard.
 - (b) Stage II—small and large targets with auxiliary aiming marks, 200 to 600 yards ; signalling flag and one assistant to each target to work marking disc. Aiming rests, tripods, and sandbags.
 - (c) Stage III—Fig. No. 2 targets and remainder as in (b).
- ii. Inspect rifles, dummies and pouches. Loosen slings.

Stage I.—The Elevation Table

2. Sequence of Instruction.

- i. State that for alteration of sights in range and battle practices the man requires instruction in the elevation table.
- ii. Correcting errors in elevation by sight adjustment enables the regulation point of aim to be maintained.
- iii. Using blackboard or other means, show and teach the elevation table.

ELEVATION TABLE

Range	Elevation	Vertical Rise		Elevation	Vertical Rise	
		In.	How obtained		In.	How obtained
200	300	6	$2 \times 3 = 6$	400	12	Double amount obtained for 300
300	400	12	$3 \times 4 = 12$	500	24	Double amount obtained for 400
400	500	20	$4 \times 5 = 20$	600	40	Double amount obtained for 500
400				550	30	4×5 and add half amount again, <i>i.e.</i> $4 \times 5 = 20$ $\frac{1}{2}$ of 20 = 10 Total $\overline{30}$

ELEVATION TABLE—continued.

Range.	Elevation.	Vertical Drop		Elevation.	Vertical Drop	
		In.	How obtained		In.	How obtained
500	400	25	$5 \times 5 = 25$	300	50	Double amount obtained for 400
400	300	16	$4 \times 4 = 16$	200	32	Double amount obtained for 300
400				250	24	4×4 and add half amount again, <i>i.e.</i> $4 \times 4 = 16$ $\frac{1}{2}$ of 16 = 8 Total $\overline{24}$

Notes.—1. Units—*i.e.*, 2, 3, etc.—in “How obtained” columns refer in the case of “Vertical Rise” to the initial figures of hundreds of yards in the first two columns; in the case of “Vertical Drop” they refer to those in the first column only.

2. For basis of construction, see Appendices II and III.

Stage II.—Alteration of Sights

3. Sequence of Instruction.

- i. With rifle on rest the instructor tells squad that having just fired a series of shots at the target at 300 yards, he finds that the M.P.I. for those shots is low as shown by the disc on the target. Assistant places disc 12 inches below aiming mark. To correct this error, sights are to be altered to 400 yards.

- ii. Instructor explains that, in war, errors in elevation should be corrected by sight adjustment whenever time permits, and that, as it only takes three seconds to adjust the sights, it should nearly always be possible.
- iii. Application of *Elevation Table* by squads. Simple problems will be set using a marking disc on the target at from 200 to 600 yards, to show the supposed M.P.I. for the strike of the shots—above and below the aiming mark.
- iv. Give further practice at targets at ranges from 200 to 600 yards. Wind problems may also be introduced.

Stage III.—Aiming up or down

4. Sequence of Instruction.

- i. With a small target at 200 yards the instructor explains that when there are petty errors in elevation which would entail moving the sights less than 50 yards or when the sights cannot be lowered any further, it may be advisable to correct the elevation by aiming up or down.
- ii. When firing a rapid or snapshooting practice a firer observes his shots to be going high or low; as time will not permit a sight adjustment, he will have to alter his elevation by aiming down or up. A correct sight will always be taken first.

- iii. When aiming above or below the normal point of aim, the amount aimed up or down should not be more than three feet.
- iv. Instructor signals man at target to place disc six inches above the top of the bull's-eye. He explains that his sights are adjusted to 200, but his shots are striking as shown by the disc. Then the only way of getting them on the mark is to aim down one foot.
- v. With Fig. No. 2 targets at from 200 to 600 yards, instructor explains that in war there may be occasions when time will not permit of sight adjustment, *e.g.* :—
 - (a) When firing at a man at 200 the firer suddenly has to engage a man at 500. Aim *up*, *i.e.* from waistline of man at 200 to head of man at 500. Limit of aiming up is three feet.
 - (b) Or, when firing at a mark at 800, suddenly the firer has to engage a man at 400. Aim *down*—limit three feet below feet of man.
- vi. Squad aims *down* on *Small* targets at 200 or 300 yards to counteract an imaginary error in the strike of shots as indicated by a disc. Instructor will check by auxiliary aiming mark, paying particular attention to maintaining the correct regulation aim.
- vii. Squad aims up and down at men or Fig. No. 2 targets at from 200 to 600 yards.

- viii. Give further practice introducing problems in aiming off for wind in conjunction with aiming up and down at *Small* targets at 300 yards, and Fig. No. 2 targets from 200 to 600 yards.

LESSON 4.—AIMING AT GROUND AND MARKING DOWN AN ENEMY

1. *Preliminaries.*

- i. Arrange for the following to be available and placed where required :—

Aiming rests, tripods, sandbags, signalling flag, landscape targets and men as necessary. When not possible to work in the open, landscape targets alone can be used.

- ii. Rehearse with men so that on given signals individuals will appear at prearranged places for a few seconds and then disappear.
- iii. (a) Inspect rifles, dummies and pouches. Loosen slings.
- (b) Point out sector of ground on which targets are likely to appear.

2. *Sequence of Instruction.*

- i. Instructor states that the eyesight must be gradually trained in aiming at service targets other than figures, such as features on the ground, where it is thought an enemy is concealed, and points out on a landscape target likely places at which aim would have to be taken.

- ii. The squad will be cautioned to watch for the appearance of a man in the sector, and to take an accurate aim where this man disappears on the command "**Aim.**"

- iii. The squad, with their rifles on rests, watch the front. A man is signalled to appear between 100 and 200 yards away and after some seconds to disappear. After a brief pause instructor orders "**Aim.**" Squad aim at spot where they think he disappeared. Instructor then signals man to stand up and aims are checked.

- iv. Give further practice, gradually introducing more difficult aiming points 200 to 600 yards away, and causing squad to memorize the exact spot where man was last seen before getting them to take their aims.

LESSON 5.—COLLECTIVE AIMING OFF FOR WIND

(For officers and fire unit leaders)

1. *Preliminaries.*

- i. Arrange for following to be available and placed where required :—

Aiming rests, tripods, sandbags, signalling flags and Fig. No. 2 targets as necessary.

- ii. Arrange suitable target, such as four Figs., No. 2 representing an enemy column ; or select any natural or artificial object at a range of about 800 yards.

iii. Place man at target who, on prearranged signals, will take up his position and show a flag at the exact spots in turn on either side of the target to represent the correct amount of allowance required in aiming off, in accordance with the series of problems to be set by the instructor.

iv. Inspect rifles, dummies and pouches. Loosen slings.

2. Sequence of Instruction.

i. Explain that, to enable the fire of a section to be applied to a target when there is a wind blowing, it is necessary for officers and N.C.Os. to know the effect of wind at distances greater than 600 yards.

ii. Whereas, in individual fire at ranges of 600 yards and under at range targets, the individual is taught to calculate his allowances in feet, when employing collective fire at longer ranges it is better to measure the amount to aim off:—

(a) In degrees, using the *foresight*.

(b) In target breadths (as taught in Lesson 2).

iii. Teach Wind Table.

TABLE
Collective Fire

Range		Mild	Fresh	Strong
In degrees: Up	to 750 yards	0°	$\frac{1}{4}^{\circ}$	$\frac{1}{2}^{\circ}$
	From 800 to 1,200 yards	$\frac{1}{2}^{\circ}$	$\frac{1}{2}^{\circ}$	$\frac{1}{2}^{\circ}$

The use of the degrees table does away entirely with all estimating in feet or yards. The fire unit leader has only to estimate (a) the strength and direction of the wind, and (b) the range, and then apply the table. For mild winds at ranges below 750 yards no allowance need be made as the width of the cone of fire will ensure fire effect.

iv. The instructor will cause the squad to lay aims off the target for *mild*, *fresh* and *strong* winds, measuring the allowances in the following order:—

(a) In degrees,

(b) In target breadths.

v. Instructor will point out that if a fire unit leader can see a suitable aiming mark on the flank of the target which would provide the correct amount of wind allowance, then the best means of applying the fire of his section would be to use the object as an *auxiliary aiming mark* and indicate it as the target.

27. Aiming at moving targets

1. *General*.—Such targets may consist of men on foot or on horseback, as well as horsed or mechanical vehicles. These last may be armoured or unarmoured. It must be realized that, as a general rule, rifle or light automatic fire will rarely be advisable at single men in movement beyond 300 yards, or at single horsemen or vehicles beyond 600 yards. In any case fire should be collective

and beyond 600 yards will seldom be worth the expenditure of ammunition.

In addition, owing to the speed at which mechanical vehicles move, aim at any particular point on a vehicle is not practicable.

2. *Armoured fighting vehicles.*—The first object of all small-arm fire should be to force them to close down, thus complicating command and control and limiting the field of vision of the crew. Once closed down the armour will normally give protection. But, although small-arm fire may be incapable of piercing the armour, the bullet fragments which penetrate the slits and joints are both physically and morally effective. Fire unit leaders must, therefore, use their own judgment as to whether they continue firing at armoured fighting vehicles after they have closed down, or engage any hostile infantry who may be co-operating.

3. *Method of engaging moving targets.*—When firing at targets crossing the front it will be necessary to “aim off.” The lead required will depend on the range and on the speed at which the target is moving.

Since, in battle, time will not permit of complicated calculations as to the size, speed and range of a moving target, the following rules only will be taught:—

i. *Men on foot.*

Aim will be taken at the man and then swung in front to obtain the required lead before firing.

(See Lesson 6.) The lead will be:—

Man walking ... 1 foot	} for every
Man running ... 2 feet	

100 yards of range.

ii. *Horsemen, horsed or mechanical vehicles.*

(a) Sights will be set at 600 yards.

(b) For targets coming straight towards the firer or going straight away, aim should be taken at the lowest central part of the target.

(c) For targets crossing the front, as in the case of anti-aircraft rifle fire, a standard lead method will be employed, aim being taken at the ground-line and the rifle swung with the target. (See Lesson 7.)

4. *Method of engaging stationary Mechanical Vehicles.*—

When vehicles break down on the battlefield or are temporarily held up by an unexpected obstacle, accurate fire at close range may be possible. In such cases the sights should be set to the estimated range.

The most vulnerable parts of a vehicle will vary with the design and whether it is armoured or not. Instructions on these points will be issued on the outbreak of war. The following details are, however, given as a general guide:—

i. *Armoured Fighting Vehicles:—*

The best point of aim is either the driver's loophole, which will always be in front of the body and low down, or the commander's loophole, which will normally be sited centrally high up, probably in a revolving turret.

ii. *Other Mechanical Vehicles:—*

The best point of aim is the driver. Damage to the tyres if puncturable, to the petrol tank or to the engine will also immobilize the vehicle.

LESSON 6.—AIMING OFF FOR MOVEMENT AT MEN ON FOOT.

1. Preliminaries.

- i. Arrange for following to be available and placed where required :—
Aiming rest, aim corrector and one or two men to move about in front of squad.
- ii. Inspect rifles, dummies and pouches. Loosen slings.
- iii. Extend squad, point out suitable target. Ground arms.

2. Sequence of Instruction.

- i. Explain necessity for aiming off at men in movement.
- ii. Teach and explain how to obtain the correct lead.
- iii. With squad standing behind the instructor in order to be able to watch the movements of his rifle, instructor demonstrates aiming and firing at a man walking to and fro across the front at 100 yards' distance :—
 - (a) Sights are first brought on to the mark and first pressure taken.
 - (b) Swing in front the required distance.
 - (c) Second pressure taken without checking the swing of the rifle.
 - (d) Continue swing after pressing the trigger and reload in the shoulder.
- iv. Instructor explains that this method of firing will be used on service at single men up to 300 yards.

- v. Squad practises automatic swing of the rifle, aiming off and taking the first pressure only.
- vi. One man at a time views instructor's *aim off* laid from aiming rest—man watches through aim corrector.
- vii. Having looked through the aim corrector, each man returns to his place in the squad and practises on his own, taking the second pressure. **It is essential that the movement of the rifle should not be checked at the moment of pressing the trigger.**
- viii. Instructor checks each man's progress in turn by means of the aim corrector.
- ix. Squad is given further practice at actual distances up to 300 yards.

LESSON 7.—AIMING OFF FOR MOVEMENT AT HORSEMEN AND HORSED OR MECHANICAL VEHICLES

1. Preliminaries.

- i. Arrange for following to be available and placed where required :—
 - (a) Cardboard silhouettes to scale, representing horsemen, small and large armoured fighting vehicles, etc., at some convenient range, say 300 yards.
 - (b) Aiming rests, tripods and sandbags. Target or screen on which silhouettes can be fixed.
- ii. Inspect rifles, dummies and pouches. Loosen slings.

2. Sequence of Instruction.

i. Instructor explains that the method he is about to teach will be used on service against:—

- (a) Horsemen or horsed vehicles to bring down the leading horses.
- (b) Unprotected mechanical vehicles to kill the driver, or damage the petrol tank or tyres.
- (c) Armoured fighting vehicles; first, by bursts of concentrated fire, to force the vehicle to close down, thus limiting the field of vision of its commander and crew, and then to endeavour to penetrate joints in the armour.

ii. Instructor will explain that in the case of targets directly advancing or retiring the normal point of aim will be used.

iii. Instructor explains by diagrams of sights, foresight protectors and silhouettes the method of aiming off at crossing targets, viz. :—

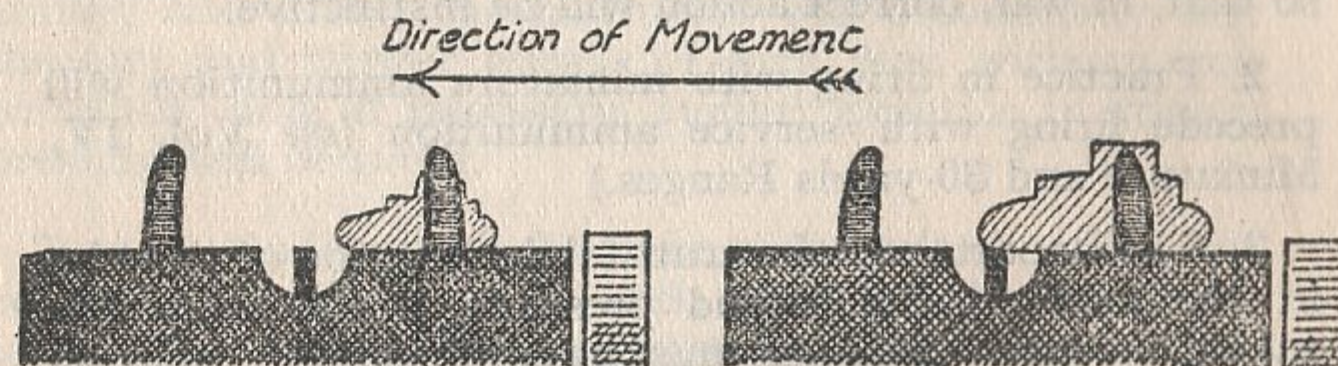
- (a) Roughly align the rifle on the target.
- (b) Cover off the centre of the target by the inner foresight protector.
- (c) While still keeping the inner foresight protector on the centre of the target, swing the rifle with it and take a normal aim at the ground-line. (For light-automatic see Sec. 5, Vol. II, 1931.)

iv. Instructor lays a correct aim at different types of targets (see Sec. 27, 3, ii). Squad views each

aim. Instructor explains that in the case of crossing targets:—

- (a) An aid to keeping a correct elevation is obtained by aligning the shoulders of the backsight on the ground-line of the target.
- (b) The relation of the point of aim to the target will vary with its size and with the range (see Figure 16).

FIG. 16.—AIMING AT CROSSING A.F.Vs.



SMALL.

LARGE.

Appearances of A.F.Vs. when viewed over the sights in the manner laid down in Lesson 7, Section 27.

- v. Squad practises laying aims at different types of target. Instructor checks.
- vi. Instructor explains that in the case of a crossing vehicle the swing of the rifle should conform to its pace.
- vii. Further practice. During both individual and collective training advantage should be taken of the presence of any armoured fighting or

other vehicles to practise aiming. Useful practice may also be obtained using model armoured fighting vehicles with the *Spot Light Projector* appliance as used for anti-aircraft training. (See Vol. II.)

FIRING INSTRUCTION

28. General

1. The object of all firing instruction is to teach men to handle their rifles both in the open and behind cover so that, in war, correct action will be instinctive.

2. Practice in firing with miniature ammunition will precede firing with service ammunition (see Vol. IV, Miniature and 30-yards Ranges.)

3. The importance of a truthful declaration of the aim at the moment the second pressure of the trigger is taken, except in *rapid fire*, must be emphasized. Instructors must realize the need of setting a good example in this respect, taking care that they themselves do not acquire a habit of automatically declaring their own shots *correct* when demonstrating to young soldiers. As soon as the man has been taught how to press his trigger he will be informed that, in all firing instruction, he will have to declare his exact aim at the moment the second pressure has been taken.

4. The use of the sling for steadying the rifle during firing is not to be taught.

5. Rifles having long, normal, or short butts should be issued to men according to their build. The final test to ascertain if a rifle fits an individual properly should be

made as soon as he has been taught how to fire in the standing and lying positions. The readiness with which the firer brings his rifle into *the aim* without having his nose and mouth too close to the thumb and fingers of his *trigger* hand will indicate the suitability of the size of his rifle. The trigger release of rifles must be in perfect order. This fitting of rifles to individuals will receive the personal attention of platoon and equivalent commanders.

6. When the man has progressed sufficiently far in aiming and firing, the instructor will occasionally test the aim and trigger release of each man with an aim corrector, and, if necessary, further practice in trigger pressing will be given.

7. Any tendency to shoot from the left shoulder will be discouraged. A man with normal vision learning to use the rifle for the first time can be taught to fire from the right shoulder, for which the rifle is constructed, as easily as from the left.

8. Instruction in firing in the open and behind cover is the basis of *fire discipline training*, and instructors must be constantly alert to see that the points mentioned in Sec. 34, 6. vi., which are applicable in *firing instruction* are insisted upon from the first.

9. Squads will be formed in line and extended as necessary. Sufficient targets will be provided to ensure that each man has a definite point of aim. The targets will be at such distances as to conform to the stage of training reached in aiming instruction.

10. The following points are common to all firing instruction :—

- i. Eyes on the target in the loading position.
- ii. The forefinger clear of the trigger until the butt is in contact with the shoulder.
- iii. The shoulder must provide a good bed for the butt, the cheek resting on the butt, and the eye well back from the cocking-piece to obtain a clear view of the sights.
- iv. A firm grip with both hands whilst firing.

11. When a pause is necessary during instruction, in order to explain anything to the squad, the order "**Rest**" will be given, whereupon safety catches will be applied and a convenient position of rest adopted. When the explanation, etc., is finished, the order "**Position**" will bring the men back into their original position.

12. *Fixing of bayonets.*—Bayonets will be fixed as soon as men reach the stage of handling the rifle behind cover and instruction in rapid firing.

29. Loading, unloading, charging magazines and trigger pressing

LESSON 1.—RECRUITS' INITIAL LESSON

(Taught in Care and Mechanism of the Rifle.

See Sec. 24, Lesson 1, iv.)

1. Preliminaries.

- i. Prepare seats as required.
- ii. Inspect rifles, dummies and pouches. Loosen slings.

Stage I.—Loading and unloading

2. Sequence of Instruction.

- i. State object of lesson, *i.e.*, to ensure quick and safe loading and unloading.
- ii. Show charger containing five rounds.
- iii. Demonstrate :—

(a) Loading— Pushing forward safety catch.

Opening cut-off.

Opening breech.

Inserting charger.

Closing breech.

Applying safety catch.

Buttoning pouch.

(b) Unloading—Pushing forward safety catch.

Opening breech.

Ejecting rounds.

Closing cut-off.

Closing breech.

Pressing trigger.

Applying safety catch.

- iv. Squad imitates instructor in loading and unloading.

(a) To Load :—

- (i) Turn the *safety catch* completely over to the front with the thumb of the right hand.

- (ii) Pull out the *cut-off*, first pressing it downwards with the thumb.

- (iii) Seize the knob of the *bolt* with the forefinger and thumb of the right hand, turn it sharply upwards, and draw back the *bolt* to its full extent.
- (iv) Take a *charger* between the thumb and first two fingers of the right hand, and place it vertically in the *guides*.
- (v) Then, placing the ball of the thumb immediately in front of the *charger*, and hooking the forefinger under the *cut-off*, force the cartridges down with a firm and continuous pressure until the top cartridge has engaged in the *magazine*. If there is no *cut-off*, hook the finger under the woodwork.
- (vi) Force the *bolt* sharply home with the thumb and forefinger, turning the knob well down, and, with the forefinger of the right hand, turn the *safety catch* completely over to the rear, ensuring at the same time, by means of the remaining fingers, that the *bolt-lever* is fully down. Button up the pouch.

(b) To Unload :—

- (i) As when loading, but after drawing back the *bolt*, work the *bolt* rapidly backwards and forwards, without turning the knob down, until the cartridges are removed from the *magazine* and *chamber*.
- (ii) Close the *cut-off* by placing the right hand over the *bolt* and pressing the *cut-off* inwards, then close the *breech*, press the *trigger* and turn the *safety-catch* over to the rear with the first finger of the right hand.

- v. Men practise individually. Instructor checks.
- vi. Further practice by word of command as necessary.

3. Alternative method of unloading.

- i. Instructor states that there is another method of unloading.
- ii. Instructor loads one charger and then demonstrates unloading by—
 - Removing magazine.
 - Opening breech and securing round from chamber by fingers of the left hand and allowing it to fall through the magazine opening into the palm of the left hand.
 - Closing cut-off.
 - Closing breech.

Pressing trigger.

Applying safety catch.

Emptying magazine.

Replacing magazine.

iii. Instructor states when this method would be used on service, *i.e.*, unloading in the dark or in a muddy trench, etc.

iv. Squad imitates instructor.

Stage II.—Charging magazines

4. Sequence of Instruction.

i. Instructor states that the magazine will hold two chargers of five rounds each but should, in ordinary circumstances, be loaded with 1 only. If it is desired to charge the magazine without loading the rifle, the order would be "**Charge Magazines.**"

ii. Instructor demonstrates—
 Pushing forward safety catch.
 Opening cut-off.
 Opening breech.
 Inserting charger.
 *Pressing down top cartridge.
 *Closing cut-off.
 Closing breech.
 Pressing trigger.
 Applying safety catch.

* Alternatively, if there is no cut-off—
 Maintaining pressure on top cartridge with thumb of right hand.
 Drawing bolt-head over top cartridge with little finger.

iii. Instructor states that *charging magazines* is done when it may be required to open fire in an emergency but conditions do not necessitate rifles being loaded.

iv. Squad imitates instructor.

5. Loading when magazine is already charged.

i. Instructor states that, in order to be able to fire the rifle, it must first be loaded.

ii. Instructor demonstrates—
 Pushing forward safety catch.
 Opening cut-off.
 Opening breech.
 Closing breech.
 Applying safety catch.

iii. Squad imitates instructor.

Stage III.—Trigger pressing

6. When practising trigger pressing the instructor will ensure that men hold their rifles in a manner which conforms to that when actually firing, *i.e.*, the right elbow below the toe of the butt.

7. Trigger pressing requires careful individual instruction during which the necessity for determination, strong personal effort, and nerve control will be impressed on the mind of every recruit. The importance of physical fitness and its bearing on accurate trigger release will also be emphasized.

8. Sequence of Instruction.

i. Ensure that each recruit can move his trigger finger freely.

ii. Explain—

- (a) Unless trigger is properly pressed bad shooting will result.
- (b) Double pressure—two distinct pressures are necessary to fire the rifle. The strength of the first is three to four lbs.: that of the second about two lbs.: making a total of five to six lbs.
- (c) When pressures are taken—the first should be taken when the rifle has been brought into the shoulder for aiming; the second when the sights are aligned on the mark.

iii. The instructor demonstrates each phase of the action of trigger pressing, mentioning each phase as he does it.

iv. Squad imitates instructor in each phase as follows :—

- (a) Cocking *action* and correct grip with right hand.
- (b) Applying forefinger to the *trigger*—first joint on the lowest part of the *trigger*.
- (c) The *direction* of the pressure—emphasize that it is diagonally across the *small of the butt*.
- (d) Taking first pressure.
- (e) Taking second pressure—
 - (i) Squeezing action of right hand.
 - (ii) Right wrist not to be moved.

- (iii) Breathing momentarily restrained *just as pressure is taken*.

v. Each man in turn will be shown the correct pressures by the instructor performing the movements with his forefinger placed over that of the man. The instructor will check each man's pressures by placing his own forefinger on the trigger and getting the man to take the pressures over his own forefinger. The instructor may use either hand.

vi. Give reasons for points in iv, as follows :—

- (a) Use of forefinger—to enable correct grip to be maintained.
- (b) Use of first joint—secure hold of trigger.
- (c) Use of lowest part of trigger—to obtain leverage for steady pressure.
- (d) Momentary restraint of breathing—to ensure aim is undisturbed as second pressure is being taken.

vii. Further practice by men individually as necessary.

30. *Firing in the open*

LESSON 2.—THE STANDING POSITION

1. This position is a convenient one for elementary instruction, but when recruits have acquired facility in handling the rifle they will be practised normally in the lying and kneeling positions.

2. *Preliminaries.*

- i. Arrange for suitable targets for instructor and squad.
- ii. Inspect rifles, dummies and pouches. Loosen slings. Extend squad. Point out targets, including one for instructor.

3. *Sequence of Instruction.*

- i. State object of all firing instruction (Sec. 28, 1). This lesson is to teach how to fire the rifle in the standing position.
- ii. Give complete demonstration of *whole position*, naming each phase while doing so—
Loading position.
Loading.
Sight-setting (give a range).
Aiming and firing.
Declaring point of aim.
Unloading.
Returning to the order.
- iii. Instructor informs squad that this position is used to fire over high cover and gives examples. He also explains that it may be used during an advance, to take a snapshot without unduly checking the pace; such a shot would necessitate halting for a moment only.

Stage I.—Loading position

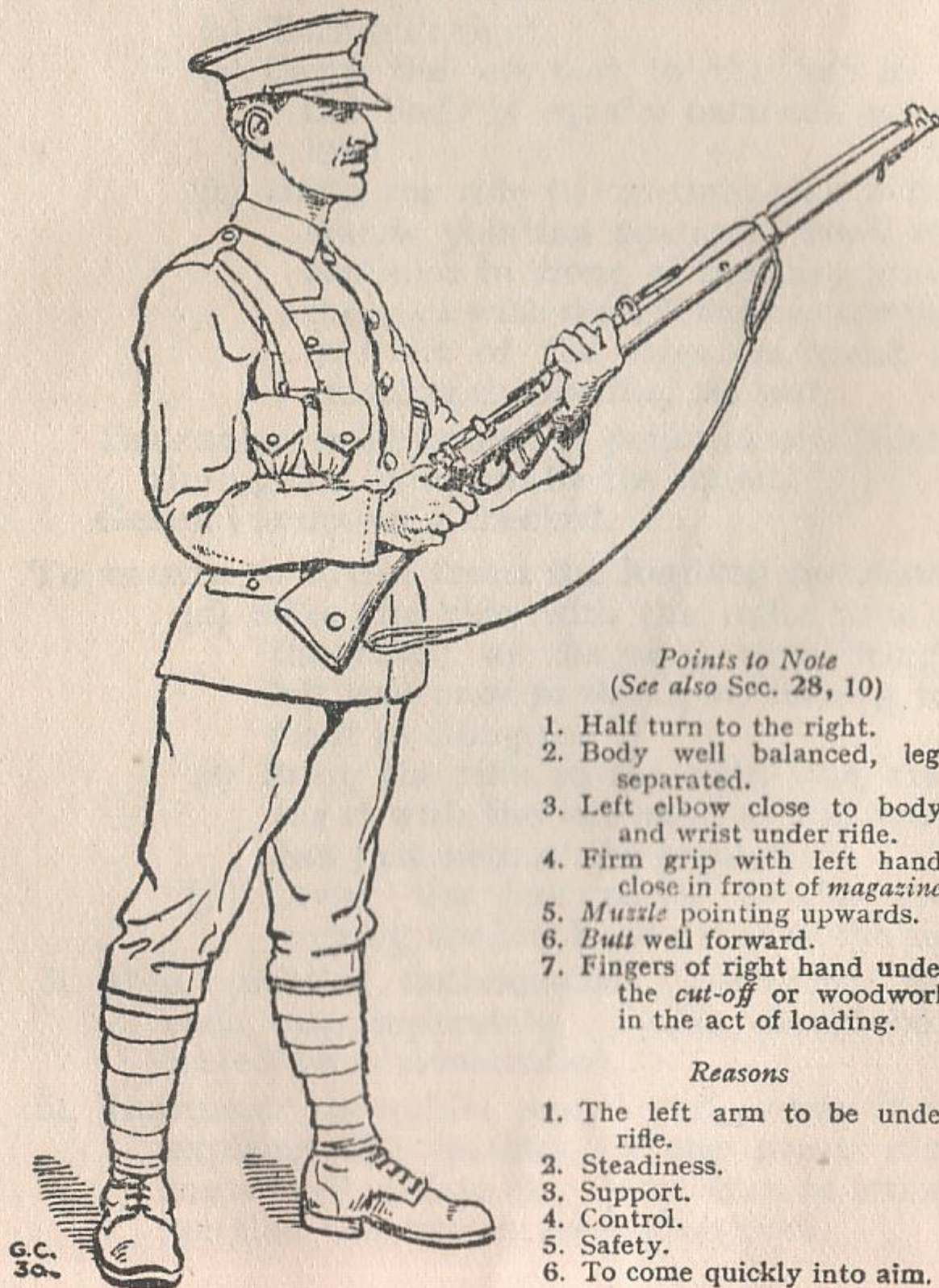
(See Plate 8)

- i. Squad imitates instructor in coming to the loading position and returning to the order.

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PLATE 8

STANDING—LOADING POSITION

*Points to Note*
(See also Sec. 28, 10)

1. Half turn to the right.
2. Body well balanced, legs separated.
3. Left elbow close to body, and wrist under rifle.
4. Firm grip with left hand, close in front of magazine.
5. Muzzle pointing upwards.
6. Butt well forward.
7. Fingers of right hand under the *cut-off* or woodwork in the act of loading.

Reasons

1. The left arm to be under rifle.
2. Steadiness.
3. Support.
4. Control.
5. Safety.
6. To come quickly into aim.

To come to the loading position :—

- (a) Turn half right.
- (b) Carry the left foot to the left so that the body is equally balanced on both feet.
- (c) Bring the rifle to the right side with the *muzzle* pointing upwards, *small of the butt* just in front of the hip, grasping the *stock* with the left hand immediately in front of the *magazine*, right hand grasping the *small of the butt*.

Instructor emphasizes the *points to note* (Plate 8), during the imitation by the squad.

General faults only checked.

To return to order from the loading position.

- (d) Seize the rifle with the right hand near the *band*; at the same time bring the left foot back to the right, turning to the front in doing so.
- (e) Bring the rifle to the right side, steadying it with the left hand at the *nose cap*, *butt* just clear of the ground.
- (f) Lower the *butt* gently to the ground cutting the left hand away to the side.

ii. Men practise individually. Instructor checks each man separately. Faults should be corrected by demonstration.

iii. Instructor assembles squad and, while it rests, explains the reasons for the *points* already mentioned (Plate 8). Instructor questions to see that the reasons are understood.

- iv. Squad resumes original position and is given further practice as follows:—

Men practise individually until the position can be adopted in one movement.

Stage II.—Loading, Sight-setting and Unloading

- i. Squad ordered to adopt the loading position.
- ii. Squad imitates the instructor in loading (Recruits' Initial Lesson).

Adjusting sights (**Lesson I—Aiming Instruction**).

Unloading and returning to the order. (Unloading—Recruits' Initial Lesson.)

- iii. Squad practises loading, sight-setting and unloading individually. Instructor checks each man separately.
- iv. Squad practises by word of command: "**Standing Load**" and "**. . . hundred**" (instructor gives various adjustments and checks).
- v. Instructor orders "**Unload**". Squad returns to the order. Instructor checks to see if sights have been lowered and safety catch applied.

Stage III.—Aiming position

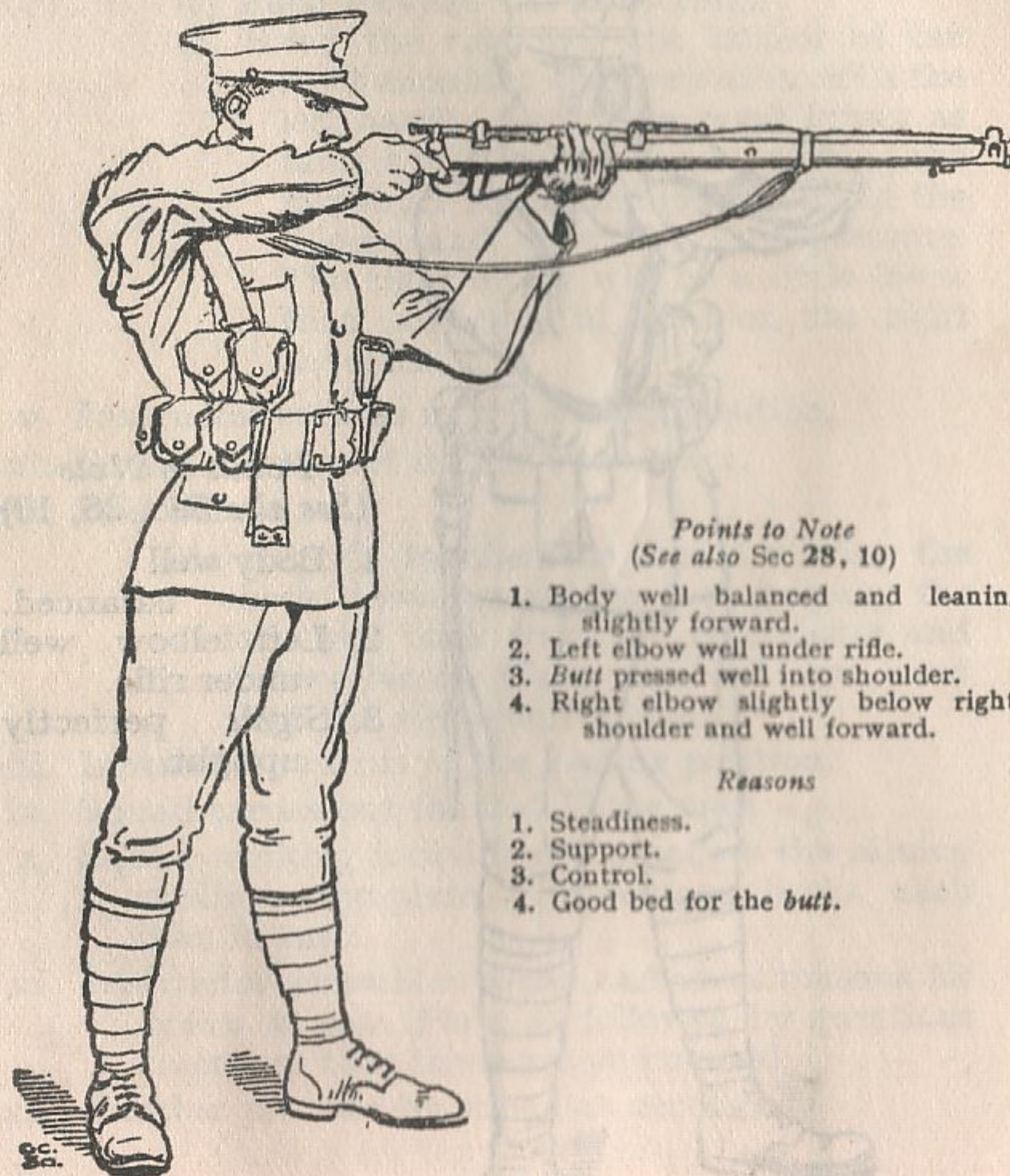
(See Plates 9 and 10)

- i. Instructor gives order "**Standing Load**" and "**. . . hundred**".
- ii. Instructor states that he will now teach the aiming position.
- iii. Gives demonstration of the aiming position in two distinct phases and, after the demonstration of each phase, mentions the *points to note* in that phase. (Plates 9 and 10.)

[To face page 104]

PLATE 9

STANDING—POSITION WHEN AIMING AND FIRING (SIDE VIEW)



Points to Note (See also Sec 28, 10)

1. Body well balanced and leaning slightly forward.
2. Left elbow well under rifle.
3. Butt pressed well into shoulder.
4. Right elbow slightly below right shoulder and well forward.

Reasons

1. Steadiness.
2. Support.
3. Control.
4. Good bed for the butt.

PLATE 10

STANDING—POSITION WHEN AIMING AND FIRING
(FRONT VIEW)*Points to Note*
(See also Sec. 28, 10)

1. Body well balanced.
2. Left elbow well under rifle.
3. *Sights* perfectly upright.

iv. 1st Phase—

- (a) Direct eyes on the mark.
- (b) Push forward the *safety catch*.
- (c) Bring the rifle into the hollow of the right shoulder and press it in with the left hand. Grasp the *small* firmly as taught in trigger pressing, placing the forefinger round the lower part of the *trigger*, and take the first pressure. The right elbow will be a little lower than, and well in front of, the right shoulder.

v. Instructor returns to the loading position.

vi. Squad carries out the 1st Phase once.

vii. 2nd Phase:—

As the rifle touches the shoulder bring the cheek down on to the *butt*, keeping the face well back from the right hand and *cocking-piece*. Close the left eye, and align the *sights* on the mark.

viii. Instructor returns to the loading position.

ix. Squad carries out the 2nd Phase once.

x. Squad working individually practises the aiming position complete. Instructor checks each man in turn.

xi. Instructor assembles squad and gives reasons for *points to note* (Plate 9), followed by questions to ensure that these are understood.

xii. Further practice by squad as necessary.

Stage IV.—Firing

- i. Instructor gives order "**Standing—Load**" (or, if already loaded, "**Standing load—Position**") and "**. . . hundred.**"
- ii. Instructor states that he will now teach the actual firing of the rifle.
- iii. He explains that—
 - (a) The *safety catch* will always be put forward on the named number of rounds being given.
 - (b) The normal (*slow*) rate of fire is five rounds a minute.
 - (c) After firing five rounds, or on the command "**Stop**," the rifle will be loaded again.
 - (d) If the order "**Stop**" has been given, firing will be resumed on the command "**Go on.**"
 - (e) After a rifle has once been loaded, the soldier is responsible that his magazine is kept filled until the command "**Unload**" is given.
- iv. Instructor, giving himself an order:—

"**Target—Five rounds—Fire,**" demonstrates firing five rounds at the correct rate, mentioning the actions as he performs them as follows:—

 - (a) *Safety catch* forward (on "**rounds**").
 - (b) Rifle into aiming position (on order "**Fire**").
 - (c) *Sights* aligned on mark.

- (d) Breathing restrained—second pressure taken.
- (e) Declare point of aim.
- (f) After a slight pause bring the rifle to the loading position and reload.
- v. Instructor mentions essential *points to note*, i.e.—
 - (a) On the command "**Fire,**" the rifle is brought into the aiming position.
 - (b) When *sights* are correctly aligned restrain the breathing and take the second pressure.
 - (c) Declare as truthfully as possible the exact direction in which the rifle was pointing at the moment of discharge, i.e., "*Correct,*" "*High,*" "*Low,*" etc.
- vi. Squad performs the action of firing once.
- vii. Squad, working individually, practises firing. Instructor checks each in turn.
- viii. Instructor orders "**Unload.**" He then assembles squad and reminds them of the importance of the truthful declaration of each shot during all firing instruction, except in *rapid fire*.
- ix. Instructor gives the order "**Standing Load.**" Squad practises firing on words of command: —"**Target— . . . rounds—Fire.**"
- x. To avoid any tendency to develop a habit of declaring every shot *correct*, the instructor will, at this stage, check the declarations of some of the squad by making the individual aim at his eye.

- xi. When the practice is finished the instructor will order "Unload."

Stage V.—(Instructors only)—How to get the eye back from the cocking-piece

Instructor explains that it is essential for a clear view of the sights and that the following should be tried.

- i. Raise the head a little and draw it back.
- ii. Raise the butt a little higher in the shoulder.
- iii. Turn the body more square to the target.
- iv. If these methods fail, obtain a longer butt.

LESSON 3.—THE LYING POSITION

1. Men will be trained to adopt the lying position rapidly and to perform the loading and unloading motions with as little movement as possible. The oblique angle of the body is essential but should not be exaggerated.

2. The sequence of instruction will be the same as for the standing position.

3. Preliminaries.

- i. Arrange for suitable targets for instructor and squad. Aiming disc.
- ii. Inspect rifles, dummies and pouches. Loosen slings. Extend squad. Point out targets, including one for instructor.

4. Sequence of Instruction.

- i. The object of the lesson is to teach how to fire the rifle lying in the open.

PLATE 11
LYING—POSITION WHEN LOADING



Points to Note

(See also Sec. 28, 10)

1. Body oblique to line of fire.
2. Legs separated.
3. Heels on the ground.
4. Elbows closed slightly inwards.
5. *Butt* well forward.
6. Rifle resting on the ground.
7. *Muzzle* pointing towards the target.

Reasons

1. To get left forearm under rifle.
2. Steadiness.
3. Concealment.
4. Prevent elbows moving when coming into aim.
5. Coming quickly and cleanly into aim.
6. Steady for loading.
7. Rapidity of coming into aim.

- ii. Instructor gives a complete demonstration of the whole position, naming each phase—
Loading position.
Loading.
Sight-setting (give a range).
Aiming and firing (declare point of aim).
Unloading.
Rising and returning to the order.
- iii. Instructor informs squad that this position is used on service when firing in the open or when firing from continuous low cover such as a bank or a fold in the ground ; also from behind isolated cover such as rocks, trees, etc.

Stage I.—Loading position

(See Plate 11)

- i. Squad imitates instructor in—
(a) Lying down.
(b) Getting up from the lying position.
(c) Returning to the order.
- ii. **To lie down.**—Turn half-right and bring the rifle to the right side as when standing. Advance the left foot as far as possible, at the same time canting the rifle forward, muzzle leading, and grasping the rifle in the left hand at the point of balance. Place the right hand on the ground and lie down by carrying the left foot back and lowering the rifle to the ground gently so that the muzzle is pointing towards the target and the left arm extended to the front. The firer will then be lying obliquely

to the line of fire. The legs should be separated, the left shoulder well forward, and the rifle in a convenient position for loading.

iii. **To get up from the lying position.**—Draw up the left knee as close to the body and as far forward as is possible without unduly raising the body. Quit the rifle with the right hand and place the right hand on the ground, palm downwards and below the right shoulder. At the same time draw back the rifle with the left hand. From this position the next two movements will be made in quick succession *without any pause* between them—

First movement.—By exerting simultaneous pressure off the ground with the right hand, left elbow and left foot, raise the body off the ground.

Second movement.—Carry the left foot inwards until it is in a convenient position for taking a full pace forward with the right foot.

The movement will then be completed as follows :—

- (a) *If it is required to come to the order :—*
Bring the right foot up to the left, at the same time grasping the rifle with the right hand at the band.
- (b) *If it is required to continue advancing on rising :—*Press forward off the left foot and carry the right foot to the front in doing so. Cant the rifle into the right hand, holding it at the trail. Continue moving forward.

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PLATE 12

LYING—ADJUSTMENT OF SIGHTS



FIG. 1.—RIGHT SIDE VIEW

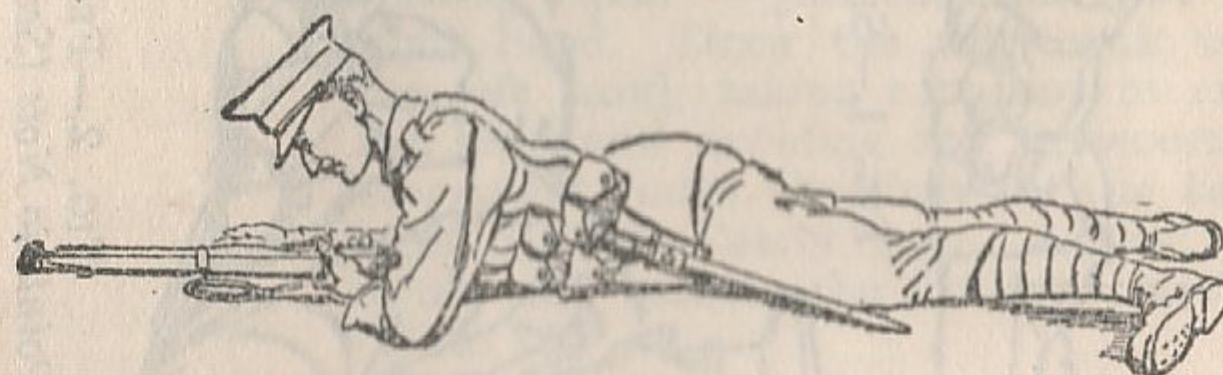


FIG. 2.—LEFT SIDE VIEW

Points to Note (See also Sec. 28, 10)

1. Firer's body is not raised.
2. Right hand is clear of rifle, but not pressing on ground.

PLATE 13
LYING—POSITION WHEN AIMING AND FIRING



FIG. 1.—SIDE VIEW



FIG. 2.—FRONT VIEW
Points to Note (See also Sec. 28, 10)

1. Both elbows on the ground.
2. Left wrist well under rifle.

During imitation of lying down and returning to the order instructor mentions the *points to note* (Plate 11).

- iv. Men practise individually. Instructor checks.
- v. Instructor assembles squad and gives the reasons for the *points to note* (Plate 11).
- vi. Further practice as necessary including "advancing." Instructor now quickens up the movements.

Stage II.—Loading, sight-setting and unloading

- i. Squad ordered to adopt the loading position.
- ii. Squad imitates the instructor in :—
 - (a) *Loading*, as already taught.
 - (b) *Adjusting sights* :—Quit the rifle with the right hand. Draw the rifle back with the left hand, taking care not to raise the head and avoiding any unnecessary movement, until the lines on the *back-sight* can be clearly seen. Adjust the sights and resume the loading position. (Plate 12.)
 - (c) *Unloading*, as for standing.
- iii. Squad practises loading, sight-setting and unloading individually. Instructor checks.
- iv. Squad practises by word of command.

Stage III.—Aiming position

(See Plate 13)

1. Instructor gives order "Load" and "... hundred."

- ii. Instructor states that he will now teach the aiming position.
- iii. Gives demonstration of the aiming position in two distinct phases, and, after the demonstration of the **1st Phase**, mentions the *points to note* in the phase (Plate 13).
- iv. **1st Phase** :—
 - (a) Direct the eyes on the mark.
 - (b) Push forward the *safety catch*.
 - (c) Without moving the elbows, come into the aiming position as in the *standing position*.
- v. Instructor returns to the loading position.
- vi. Squad carries out the **1st Phase** once.
- vii. **2nd Phase**.—When in the aiming position the rifle may be raised or lowered on the target as follows :—
 - (a) To raise the rifle, draw the body backwards pivoting on the elbows.
 - (b) To lower the rifle, move the body forwards pivoting on the elbows.
- viii. Instructor returns to the loading position.
- ix. Squad carries out **2nd Phase** once.
- x. Squad, working individually, practises aiming and taking first pressure only.
Instructor assembles squad and questions them on the *points to note* (Plate 13), to ensure that these are understood.
- xi. Further practice by squad as necessary.

PLATE 14
KNEELING—LOADING POSITION

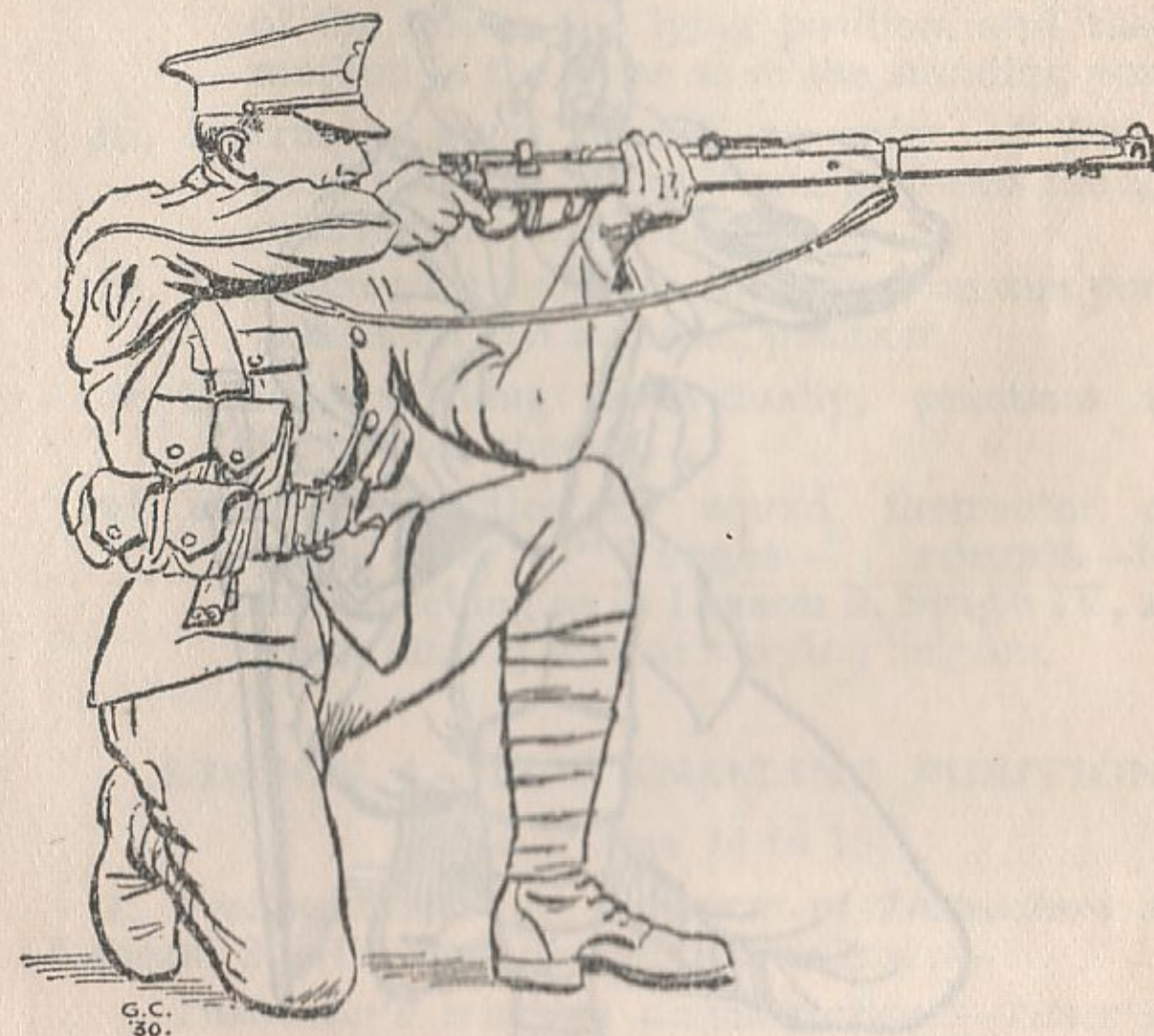


Points to Note (See also Sec. 28, 10)

1. Body well balanced, left foot carried well to right front.
2. Left heel slightly behind left knee.
3. Body supported *on* right heel.
4. Tripod support. Right knee well out to right.
5. *Butt* resting on inside of right thigh.
6. Left forearm resting behind left knee.

To follow Plate 14]

PLATE 15
KNEELING—POSITION WHEN AIMING AND FIRING
(SIDE VIEW)



Points to Note (See also Sec. 28, 10)

Left elbow resting behind or in front of the knee-cap.

KNEELING—POSITION WHEN AIMING AND FIRING
(FRONT VIEW)



Points to Note (See also Sec. 28, 10)

Left leg, forearm, rifle and right shoulder, in one vertical plane.

Stage IV.—Firing

- i. Instructor orders squad to adopt the loading position and gives "... hundred."
- ii. Instructor states that he will now teach the firing of the rifle in the lying position, and that the method is the same as in the standing position.
- iii. Instructor gives himself an order: "**Target—Five rounds—Fire,**" and performs the actions of firing as when standing.
- iv. Instructor interrogates the squad on the *points to note* as for the standing position.
- v. Squad, working individually, practises firing. Instructor checks.
- vi. Further practice by squad, instructor giving initial order:—"Target—... rounds—Fire" and checking as in Lesson 2, Stage IV, x, but using aiming disc at varying heights.

LESSON 4.—THE KNEELING POSITION

(See Plates 14 to 16)

1. *Preliminaries and Sequence of Instruction* as for Lesson 3, with the following variations:—

Instructor's complete demonstration:—After giving this the instructor will inform the squad that this position would be used on service mainly when firing from continuous cover such as a low wall, a bank, or in long grass, crops or scrub which would obstruct the line of sight if the lying position was adopted.

Stage I.—**The loading position.**

i. **To kneel.**—Take a walking pace forward to the right front with the left foot, at the same time grasping the rifle in the left hand as when standing. Kneel down on the right knee, keeping it well out to the right; if possible sink the body on to the right heel, right hand grasping the *small of the butt*, left forearm to rest behind the left knee, *butt* of the rifle resting on the right thigh.

ii. **To return to the order.**

Stand up, grasping the rifle near the band with the right hand, and, at the same time bring the left foot back to the right. Then return to the order as taught in **Lesson 2, Stage I.**

iii. When giving reasons for *points to note* explain that the object of them all is to ensure steadiness.

Stage II.—Loading, sight-setting and unloading

- i. This will not be taught, but will be practised by word of command as necessary.
- ii. For *points to note* in this position, see Plate 14.

Stage III.—Aiming position

The two distinct phases in the instructor's demonstration will be :—

i. **1st Phase :—**

- (a) Direct the eyes on the mark.
- (b) Push forward the *safety catch*.

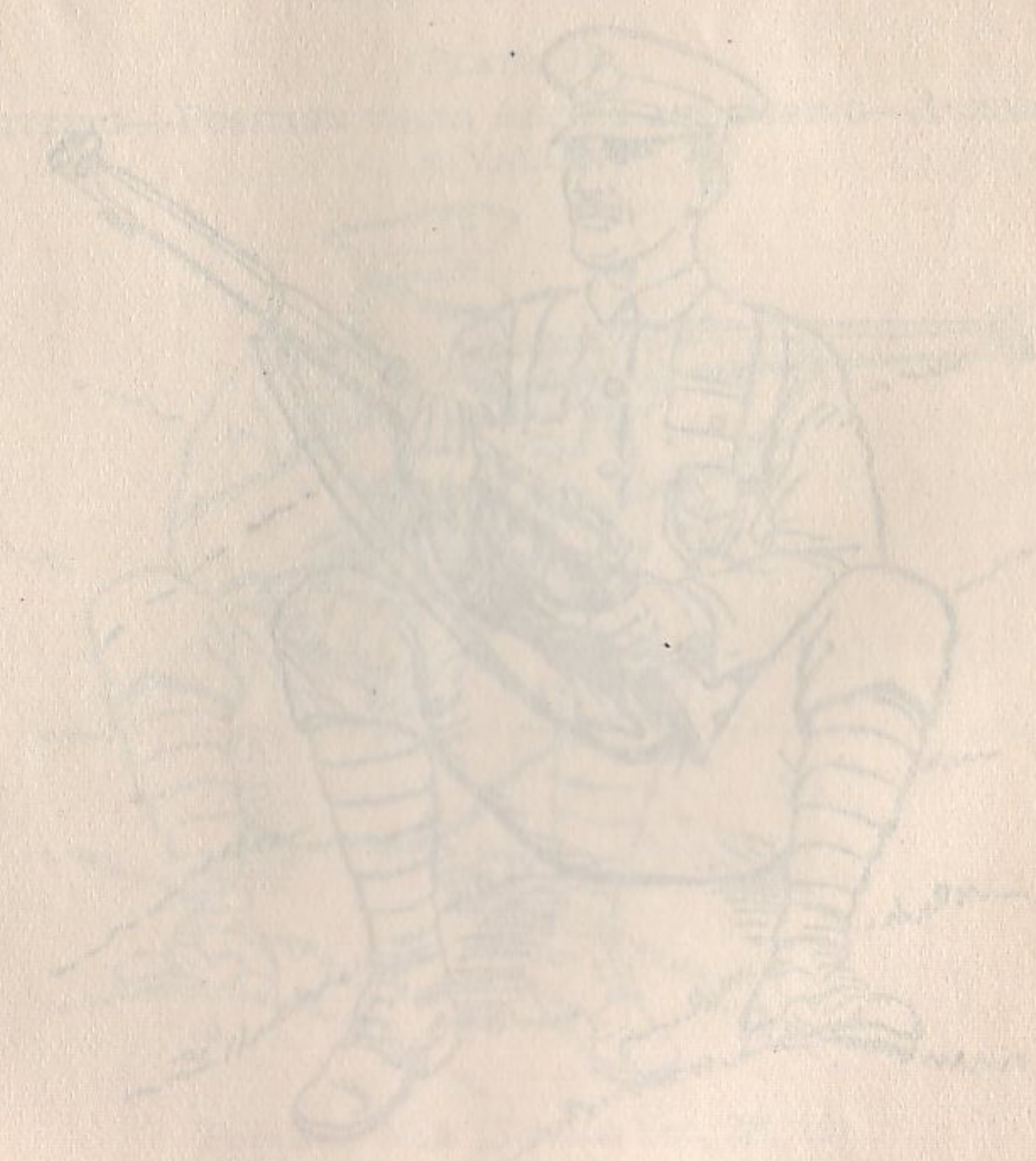


PLATE 17
SITTING—LOADING POSITION



Points to Note (See also Sec. 28, 10)

1. Body oblique to line of fire.
2. Both feet in most convenient position according to the slope of the ground.

To follow Plate 17]

PLATE 18
SITTING—POSITION WHEN AIMING AND FIRING—ACROSS
A VALLEY



Points to Note (See also Sec. 28, 10)
Both elbows rested when possible

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PLATE 19

SITTING—POSITION WHEN AIMING AND FIRING—DOWN A
STEEP SLOPE



Points to Note (See also Sec. 28, 10)

1. Left forearm resting along left thigh.
2. Right elbow raised according to slope.

- (c) Without raising the left arm, slide the left elbow forward until it rests either behind or in front of the left knee—whichever is most convenient.

Aiming position otherwise as for the *standing position*.

- (d) For *points to note*, see Plates 15 and 16.

ii. **2nd Phase** :—When in the aiming position the rifle may be raised or lowered on the target as follows :—

- (a) To raise :—Draw the body back.
(b) To lower :—Slide the left elbow forwards or backwards.

Stage IV.—Firing

Interrogation on *Points to Note* as in Lesson 3, **Stage IV.**

2. In Stages III and IV the squad should be ordered to *Rest* during the demonstrations by the instructor.

LESSON 5.—THE SITTING POSITION

(See Plates 17 to 19)

1. The instruction in this position will be confined to demonstration and practice on the following lines :—

Instructor first states what he is about to teach, then demonstrates the complete position. The instructor will then practise the squad in the complete position by word of command.

2. Demonstrations and practice must be carried out on ground suitable for the position actually being taught.

3. After giving the first complete demonstration the instructor will inform the squad that the position would be used on service when firing on a steep slope. He will then bring out the *points to note*. (Plates 17, 18 and 19.)

31. Strengthening and quickening exercises

1. These exercises are designed :—

- i. To strengthen those muscles directly concerned with the firing of the rifle so that they will be able to stand the strain of prolonged firing under war conditions.
- ii. To quicken men in handling the rifle, particularly in those movements which affect rapid firing.

Strengthening exercises

2. These will be employed progressively so as to avoid undue fatigue. The 1st and 2nd Exercises may be applied to any position, the 3rd being carried out in the standing position only.

Bayonets will be fixed as progress is made, except in the 2nd Exercise, but dummy cartridges will not be used.

A prominent object will be selected as a target.

1st Exercise—Automatic alignment

3. *Preliminaries*—

Inspect rifles, dummies and pouches. Loosen slings. Select targets. Extend squad. Fix bayonets when required.

4. Sequence of Instruction.

i. Instructor states—

- (a) Object of strengthening exercises (para. 1, i. above).
- (b) Object of this exercise, *i.e.*, to train the man to combine the use of hand and eye whereby he aligns his rifle automatically on the target.

ii. Instructor gives complete demonstration and then explains in detail how to carry it out :—

“Without dummies—Load.”

“One”—Bring the rifle to the aiming position, but only roughly align the sights on the target. After a short pause return to the loading position. Continue the movements.

“Loading position.”

“Unload.”

iii. Squad practises by word of command—“One,” after which each man works in his own time.

2nd Exercise—Gripping

5. *Preliminaries*—

As for 1st Exercise, bayonets not fixed.

6. Sequence of Instruction.

i. Instructor states object of this exercise (para. 1, i.) and gives a complete demonstration. He then explains in detail how to carry it out :—

“Without dummies—Load.”

"One." Bring the rifle to the aiming position, but without dropping the head on the butt, closing the left eye or aligning the sights.

"Two." Quit the rifle with the right hand, which should remain close to the small of the butt.

"Three." Grasp the rifle with the right hand, forefinger on trigger, and immediately quit it with the left hand, keeping it close to the rifle.

"Two." Grasp the rifle with the left hand and quit it with the right as above.

"Three." As above.

"One."

"Loading position."

"Unload."

ii. Squad practises by word of command.

iii. About 10 seconds' interval between the command

"Two"—"Three"—"Two" should be the standard reached by the trained soldier.

3rd Exercise—Endurance

7. Preliminaries—

As for 1st Exercise.

8. Sequence of Instruction.

i. Instructor explains object of this exercise (para. 1, i.), and gives a complete demonstration. He then explains in detail how to carry it out:—

"Without dummies—Load."

"One."—Bring the rifle to the aiming position and hold it there until the man begins to tire, then return to loading position. Maintain the aim as accurately as possible, but occasionally glance away from the target to avoid straining the eye by a prolonged aim.

"Loading position."

"Unload."

ii. Squad practises on command **"One."**

iii. The standard to be reached by the trained soldier will be the ability to hold the position for *two minutes* maintaining a reasonably accurate aim.

Quickening exercises

9. The exercises described in the following paragraphs are given as a guide only; it is not intended that they should be restricted to the examples given; instructors may improvise others so as to produce variety.

These exercises also lend themselves to competitions; care, however, must be taken when they are first introduced that correct manipulation is not sacrificed for speed, otherwise faults will develop which will counteract the benefit which would otherwise be derived from them.

10. **Quick loading.**—An individual quickening exercise to be introduced as early as possible and to be practised in any comfortable position. As progress is made, proper firing positions should be adopted and competitions introduced.

Six chargers of dummy cartridges to be placed ready.

The man will load all six chargers and unload as quickly as possible until all the cartridges have been ejected.

11. * **Quick handling and firing.**—Squad in two ranks six paces distant; front rank with aiming discs, lying, kneeling, or standing as required; rear rank turned about, their rifles on the ground with bolts and magazines out. Magazine platforms removed; safety catches applied; sights set at 1,000; cocking-piece in wrong groove; bayonets off; five dummy cartridges loose, and empty charger lying near rifle.

On the command "**400—Go**" each firer reassembles all parts of the rifle, fixes bayonet, loads with dummy cartridges, adjusts sights, and, in a position similar to that adopted by his front rank man, fires five rounds at the aiming disc.

The winner is the man who fires the largest number of accurately aimed shots in the shortest time, including loading the rifle with a fresh charger.

Front and rear ranks will then change over.

12. * **Rapid loading competition.**—An unlimited number of dummy cartridges are placed on the ground in chargers, fifty yards in front of the men. On the command "**Go**" they double to their ammunition and carry out loading and unloading as rapidly as possible in the lying position. The rifle must be held in the correct loading position.

Time limit—one minute.

One half squad to check the action of the other half; then change over.

The winners of squads can compete to decide who is the best.

* To be introduced when sufficient progress has been made in Sec. 32.

13. **Loader versus filler.**—The squad will be divided into pairs. One man of each pair adopts the lying position and is given five chargers of dummy cartridges. As fast as he loads and unloads his rifle the filler picks up the cartridges, replaces them in chargers and supplies the loader with ammunition.

If the loader can call, "*I am waiting*," before he has loaded and unloaded twelve chargers, he wins.

If the filler can fill seven chargers before the loader can call, "*I am waiting*," the filler wins.

32. *Snaphooting and rapid firing*

(See Sec. 1, 1, i., Vol. IV, 1931)

1. When, instead of firing a shot deliberately as in *slow fire*, it is necessary to fire one or more shots as quickly as possible, such fire will be known as *snaphooting* or *rapid firing*, *snaphooting* when it is desired to fire just one or two quick shots and *rapid firing* for a series of quick shots.

2. *Snaphooting.*—The essence of *snaphooting* lies in the ability to take the regulation aim rapidly and accurately, and to release the trigger at the right moment without disturbing the accuracy of the aim.

3. *Rapid firing.*—In this case it is necessary to fire a series of shots rapidly and accurately, each shot being fired as in *snaphooting*, a reasonable standard of accuracy being maintained throughout the series.

4. *Preparatory practices.*—These practices will be carried out in suitable firing positions, and will be introduced as soon as the man has been taught the lying position and has been exercised in rapid loading in the form of a quickening exercise. They may be treated as

separate exercises or worked in with firing instruction as necessary. Bayonets will be fixed as progress is made.

The sequence of instruction will be the same as for strengthening exercises.

i. **Practice I.—Quick loading and reloading.**

(any position)

Command	Points to note and criticise—
"Load" or	All movements carried out
("Standing")	correctly and smartly.
("Kneeling")	Magazine charged in one clean
"Load."	motion.
	Pouch rebuttoned. Safety
	catch applied.
	Firm grip with both hands.
	Eyes on target, but it is
	permissible to glance down
	to insert charger.

"Safety catches forward."

"Re-load" ...	Instant opening and closing of
Repeat four times	breech in one movement.
at intervals of	Bolt withdrawn to full extent
one second.*	each time.

"Load" with	Correct grip with right hand
another charger	as soon as breech is closed.
and repeat.	Safety catches applied.

"Rest" or
"Order Arms."

ii. Squad practises by word of command.

* The instructor must not stop to check faults until he has given the command "Load" on completion of exercise.

iii. **Practice II.**—As for **Practice I** and reloading in shoulder. First taught in lying position; may afterwards be practised in kneeling position.

"Load" ... As in **Practice I**.

"Aim" ... Safety catches forward. First pressure taken.

"Re-load" ... Rifle kept in shoulder.

As in **Practice I**, First pressure only taken.

but given at intervals of two Firm grip.

secs. Correct position of butt in shoulder.

Cheek on butt, and head kept as still as possible.

"Rest" or Safety catches applied.

"Order Arms."

iv. Squad practises by word of command.

5. * *Aids to snapshooting and rapid firing* :—

Aids.	Reasons.
(a) Action to be "bright clean" and slightly oiled.	Smooth working.
(b) Vice-like grip with left hand.	To retain correct aiming position.
(c) Correct grip with right hand.	To ensure correct trigger release.
(d) Tilt the rifle slightly to the right when reloading.	Assists opening breech and ejection.
(e) Keep the head still.	Saves time in aiming.
(f) † Count the number of rounds.	Saves time in loading.

* Instructor introduces these aids on completion of the demonstration in **Practice II**.

† Applies to both, but particularly to rapid firing.

Instruction in snapshooting

6. Preliminaries—

- i. Arrange for the following to be available and placed where required :—

For Stage I—

- (a) Small snapshooting targets at 100 yards, or representative snapshooting targets at shorter distances.
- (b) Aiming discs.

For Stages II and III—

- (a) Small and large snapshooting targets and silhouette targets (*see* paras. 8 and 9 below).
- (b) One assistant for each target.
- (c) One signal flag.

- ii. Inspect rifles, dummies and pouches. Loosen slings.

Stage I

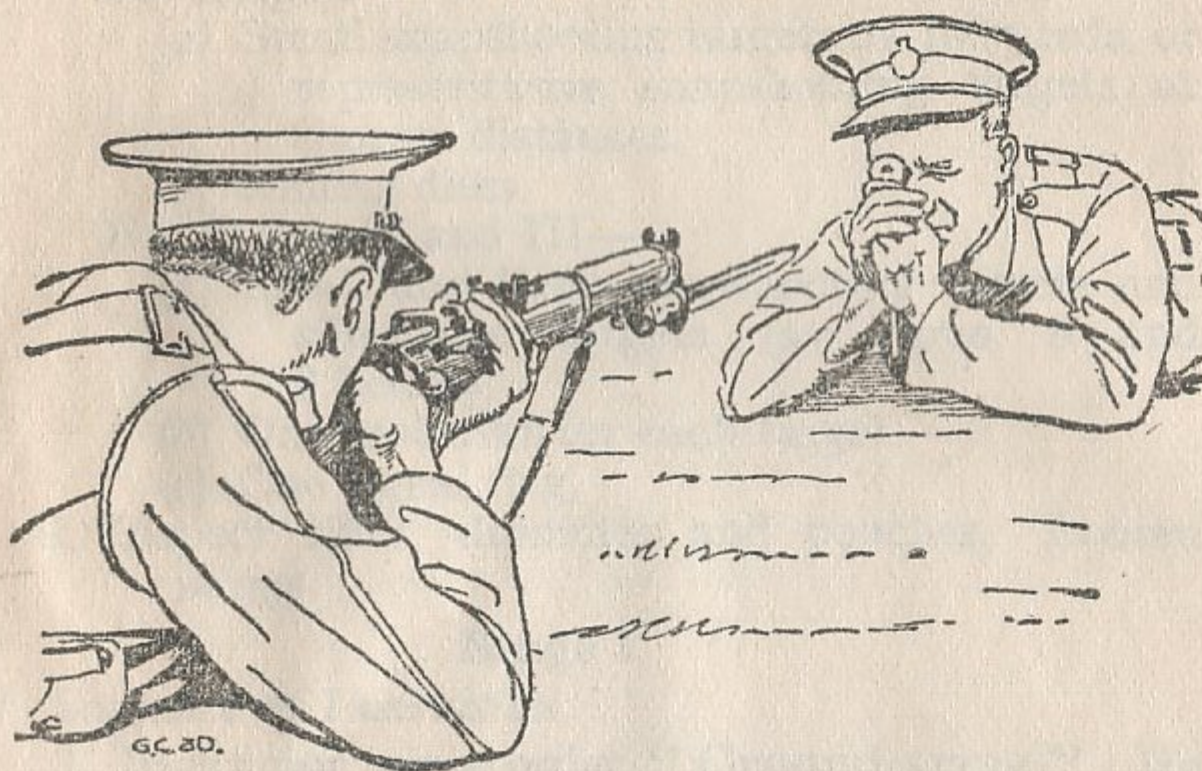
7. Sequence of Instruction.

- i. Instructor gives order "**Ground arms.**" He then states object of the lesson: To teach a man to fire one or two rounds quickly without loss of accuracy either in aiming or in trigger release.
- ii. Having assembled the squad in a convenient position, instructor demonstrates action on command, "**Watch your front,**" and the firing of a snapshot. Repeat as necessary. He then explains how time is saved by—
 - (a) Adopting a correct position.
 - (b) Bringing rifle quickly into aim.

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PLATE 20

THE USE OF THE AIMING DISC



Points to Note

1. Distance between *muzzle* of rifle and *aiming disc* about one pace.
2. Instructor adjusts height of *aiming disc* to suit firer.
3. Peak of cap to be clear of *aiming disc*.

(c) Aligning sights quickly and not dwelling on the aim.

(d) Instant reloading in the shoulder.

Instructor explains that this method of firing would be used on service when a target is exposed for only a few seconds. If the first shot misses, then, by reloading in the shoulder, it may be possible to get in a second shot before the enemy can reply to the first.

iii. Squad returns to rifles—Instructor orders "**Take up—Arms**"—"Load"—and a sight adjustment—"Watch your front." Squad pushes forward safety catches. Squad fires one round on command "**Fire.**" No time limit at first. Each individual in turn practises at the aiming disc held by the instructor, whose command "**Fire**" will be acted on by the remainder of the squad.

iv. Instructor explains how to use the aiming disc (Plate 20), and gets each individual using it to observe one or two slow shots fired by the instructor. In order to save time dummies will not be used.

v. **Mutual inspection of dummies in pairs.**

Squad opened in two ranks. Ranks facing each other at six paces. Men of one rank, using aiming discs, give the order "**Fire**" and check the aims of men of the other rank. Instructor occasionally checks with aiming disc.

- vi. Further practice will be given in the following stages. Bayonets will be fixed as progress is made.

Stage II

8. Squad will be practised at *small snapshooting targets* at a distance of about 100 yards. Exposures of about five seconds and targets appearing at the same place each time.

Stage III

9. Squad will be practised first at *large snapshooting targets* at 300 yards, and later at *silhouette targets* at ranges varying between 100 and 300 yards. The length of the exposures should gradually be reduced from five seconds to three seconds as progress is made. Targets will be exposed from different places. Occasionally men will be practised in having to fire a second shot immediately after the first one. For this purpose two exposures in very rapid succession will be given.

10. In **Stages I and II** men will not be exercised in firing two shots in quick succession even when the declaration for a shot is other than "*correct.*"

Instruction in rapid firing

11. This instruction will be given as soon as the man has been taught *snapshooting*. Bayonets will be fixed.

12. Preliminaries.

- i. Provide one aiming disc to each pair of men; if these are not available, men will fire at each other's eyes.

- ii. Inspect rifles, dummies and pouches. Loosen slings.
- iii. Fix bayonets. Extend squad to one pace.
- iv. Open ranks to six paces, ranks facing inwards.
- v. Ground arms. Assemble squad to watch demonstration.

13. Sequence of Instruction.

- i. Instructor states that he is going to teach *Rapid Firing*, and explains its meaning (paras. 1 and 3, above).
- ii. Instructor gives order: "**Ten rounds—Rapid—Fire**" and demonstrates firing ten rounds. He then emphasizes the following points:—
 - (a) Rifle brought into the aiming position on the word "**Rapid.**"
 - (b) No declaration of point of aim.
 - (c) When firing more than five rounds the *safety catch* will not be applied until the named number of rounds has been fired or the order "**Stop**" given.
 - (d) *Butt* kept in the shoulder except when loading.
- iii. Mutual inspection of dummies and pouches by squad in pairs.
- iv. Squad practises in two ranks. One rank uses aiming discs to check the accuracy of the firing of the other rank. Instructor controls the firing and gives the order: "**...rounds—Rapid—Fire.**" Instructor watches all points of elementary training and will

himself constantly check individuals with the aiming disc. After the named number of rounds have been fired the ranks exchange duties and repeat as before.

- v. Further practice, gradually working up to fifteen rounds a minute.

33. *Firing behind cover*

1. When recruits have reached a satisfactory standard in firing positions in the open, they will be taught to adapt or modify such positions to suit various types of cover.

2. The types of cover which may be met with on service are :—

Folds in the ground.	Shell-holes.
Banks.	Walls.
Hedgerows.	Rocks.
Trees and bushes.	Trenches.

3. Cover may be *continuous* or *isolated*, and may be *cover from fire* or only *cover from view*.

4. Good cover should—

- i. Permit a free use of the weapon.
- ii. Have a good field of fire.
- iii. Be bullet-proof.
- iv. Be inconspicuous.
- v. Be easy to advance from.

5. The main conditions to be observed by a firer in using cover are—

- i. Alteration of position to suit the cover without loss of fire effect.

ii. No undue movement or exposure.

iii. Correct resting of the rifle.

6. In addition to these, the following points apply when :—

i. *Firing over cover.*

(a) The left hand and forearm will be rested unless the cover is so hard as to be likely to injure the hand.

(b) If possible, neither the fore-end of the rifle nor the bayonet will be rested.

ii. *Firing round cover.*

(a) Backsight clear of cover.

(b) Side of the rifle only rested against cover.

iii. *Firing behind isolated cover.*

Firer lying straight behind cover with legs closed.

7. One of the objects of training in this subject is the development of initiative, intelligence, and common sense on the part of the man in observing the main conditions necessary when handling his weapon behind cover. This form of training is closely connected with *Fire Discipline Training* (Sec. 34).

8. In teaching this subject, therefore, instructors will bear in mind the following :—

- i. Precise drill movements will be avoided.
- ii. Exact similarity of action on the part of individuals will not be insisted upon.
- iii. Minute accuracy of detail is unnecessary so long as the main conditions are carried out.

iv. Criticism and correction of positions, actions, etc., will be made as far as possible by interrogation to encourage those under instruction to use their intelligence.

9. The order in which positions are taught is immaterial, and may be arranged to suit local conditions where the supply of cover is limited.

10. In each position, as soon as the man has been taught to fire at the *slow* rate he will be taught *snapp-shooting* and *rapid firing*. If convenient, however, he may be taught the *slow* rate in all positions before commencing snappshooting and rapid.

11. *Types of cover.*—Prior to the actual lessons, the various types of cover (paras. 2 and 3), and the points which good cover should afford will be discussed. This preliminary instruction should be given by an officer assisted as required by the N.C.O. instructor to demonstrate the use of types of cover and illustrating generally the points mentioned in paras. 5 and 6. These latter points will also be referred to during subsequent instruction as required.

LESSON 1.—STANDING BEHIND COVER

12. *Preliminaries.*

- i. Inspect rifles, dummies and pouches. Loosen slings.
- ii. “**Fix bayonets.**”
- iii. “**Standing Load.**”
- iv. “**Order arms.**”

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PLATE 21

STANDING BEHIND COVER—POSITION OF OBSERVATION

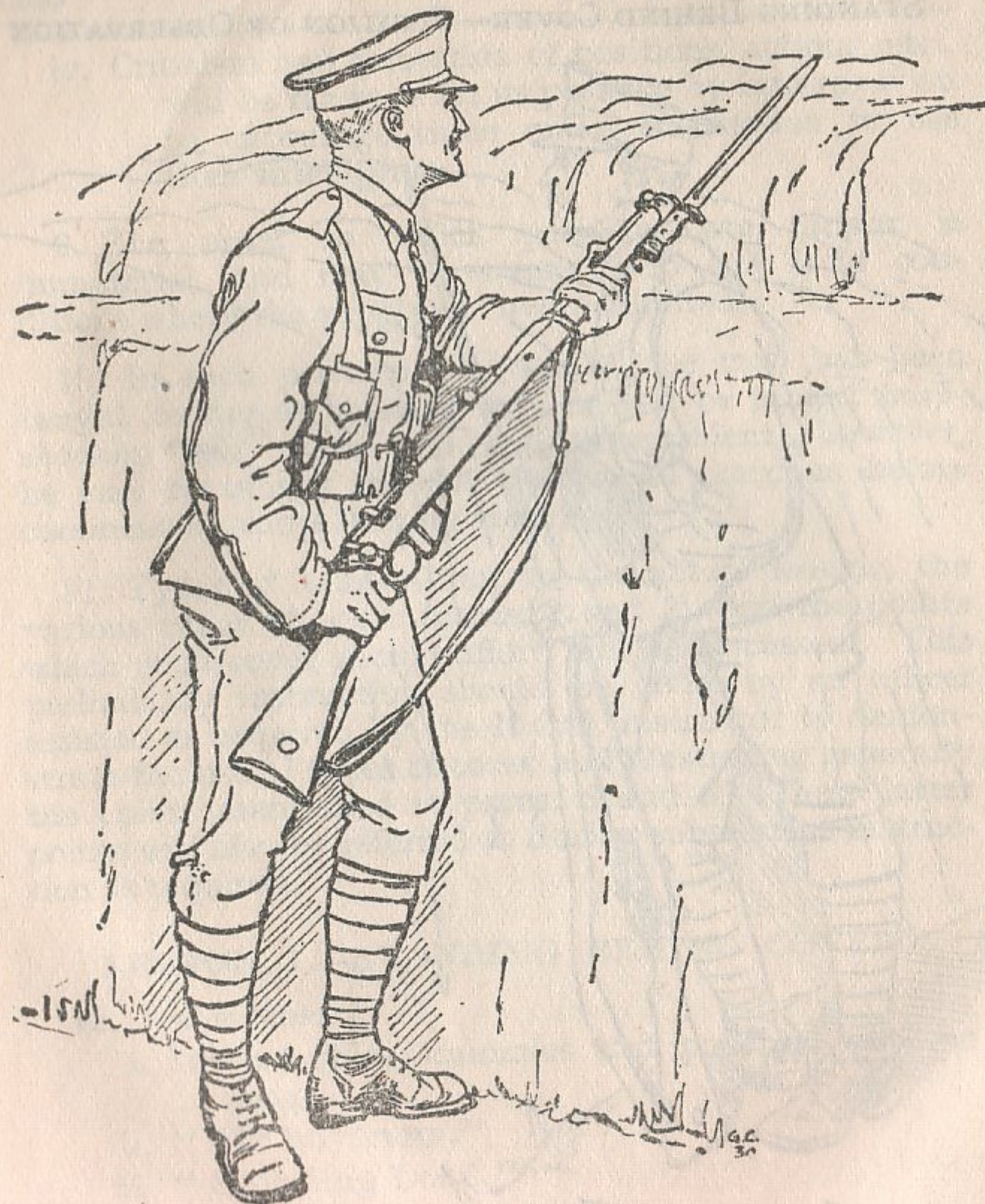


Points to Note (See also Sec. 33, 5)

1. Rifle rested on the ground. 2. Sling to the right.

PLATE 22

STANDING BEHIND COVER—POSITION OF READINESS



Points to Note (See also Sec. 33, 5)

1. Left hand near *nose-cap*.
2. Right hand grasping *small of butt*.
3. Left elbow on *elbow rest*.

To follow Plate 22]

PLATE 23

STANDING BEHIND COVER—POSITION WHEN FIRING



Points to Note (See Sec. 33, 5 and 6)



Points to Note (See also Sec. 33, 5)

1. Firer, rifle and bayonet under cover.
2. Rifle rested on the ground.
3. Muzzle clear of cover.

v. "Ground arms."

- vi. Place squad on *right* of cover, the instructor himself being *behind* the cover.

13. Sequence of Instruction.

- i. Instructor states object of lesson: How to take up positions required on service and fire the rifle standing behind cover.
- ii. Demonstrates slow rate of fire, naming each phase.

(a) *Position of observation*, enables a man to watch his front whilst remaining easy (Plate 21).

(b) Sight-setting.

(c) *Position of readiness*, used when a target is expected to appear at any moment (Plate 22).

(d) Aiming and firing (Plate 23).

(e) Loading with fresh charger (Plate 24).

(f) Returning to position of *observation* or *readiness*.

- iii. Bring out *points to note* (Plates 21 to 24).

- iv. Instructor then orders squad out in front of and facing the cover, and repeats demonstration without naming each phase. Squad to note small amount of movement and exposure.

- v. Squad practises the phases collectively by word of command. Instructor checks serious faults (para. 8, iv, above). Further practice as required.

- vi. In subsequent lessons, isolated cover excepted, the detail in para. 13, ii, above, will only be followed at the direction of the instructor.

LESSON 2.—KNEELING BEHIND COVER

14. Preliminaries as for Lesson 1.

15. Sequence of Instruction.

- i. Instructor explains that nature of cover necessitates the use of the *kneeling* position, and demonstrates slow rate of fire as in para. 13, ii, but omitting the naming, etc., of each phase.
- ii. Bring out *points to note* (Plates 25, 26 and 27).
- iii. Squad practises as for standing.
- iv. Instructor demonstrates method of firing when cover necessitates kneeling on both knees.
- v. Squad practises, if time available.

LESSON 3.—LYING BEHIND COVER

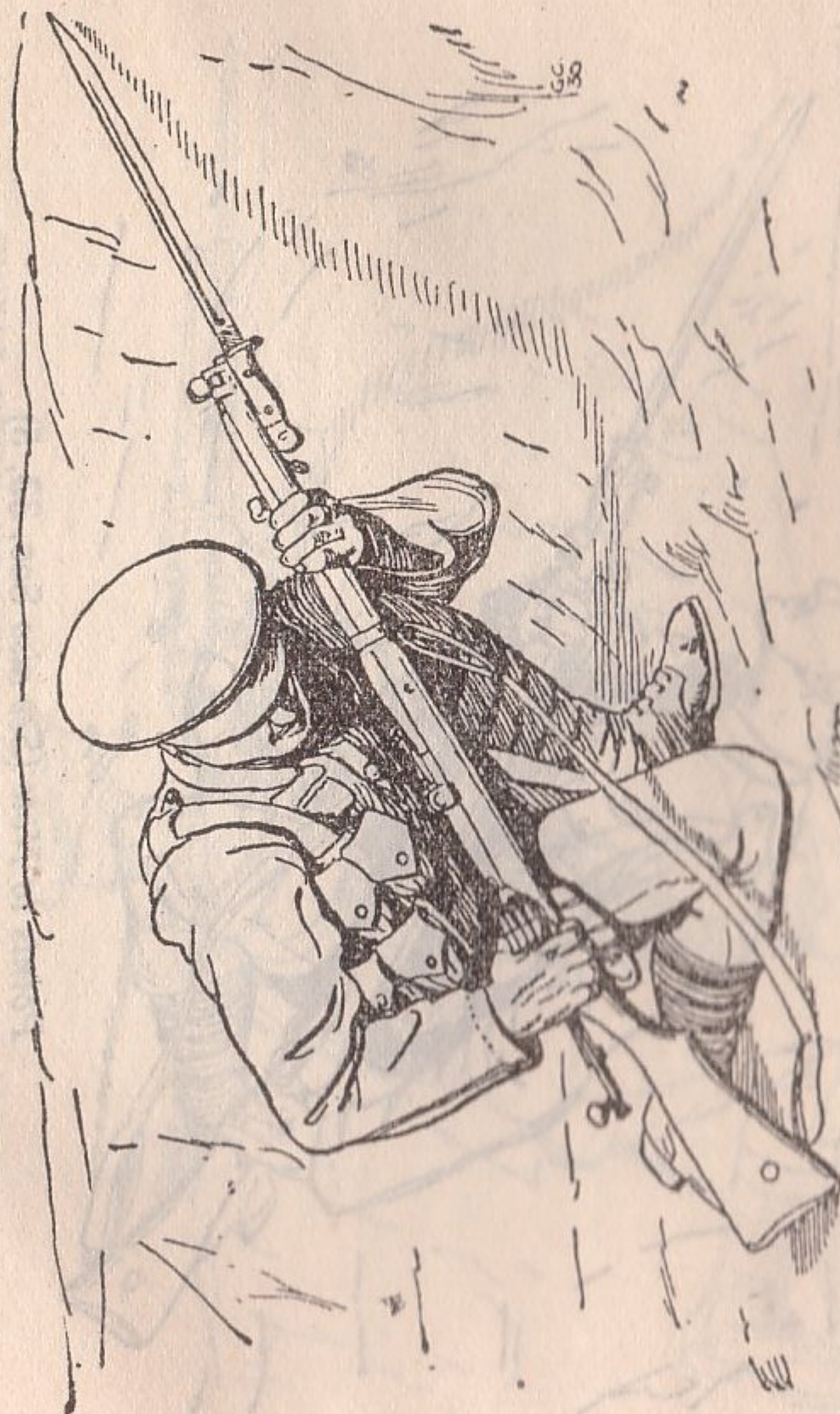
16. Preliminaries as for Lesson 1.

Stage I.—Firing over cover

17. Sequence of Instruction.

- i. Instructor states that the object of the lesson is to adapt the lying position to get best use of cover.
- ii. Demonstrates slow rate of fire, naming and explaining each phase—
 - (a) *Position of observation*.—May not often be adopted with this form of cover, but when used will be as in Plate 28.

PLATE 25
KNEELING BEHIND COVER—POSITION WHEN LOADING



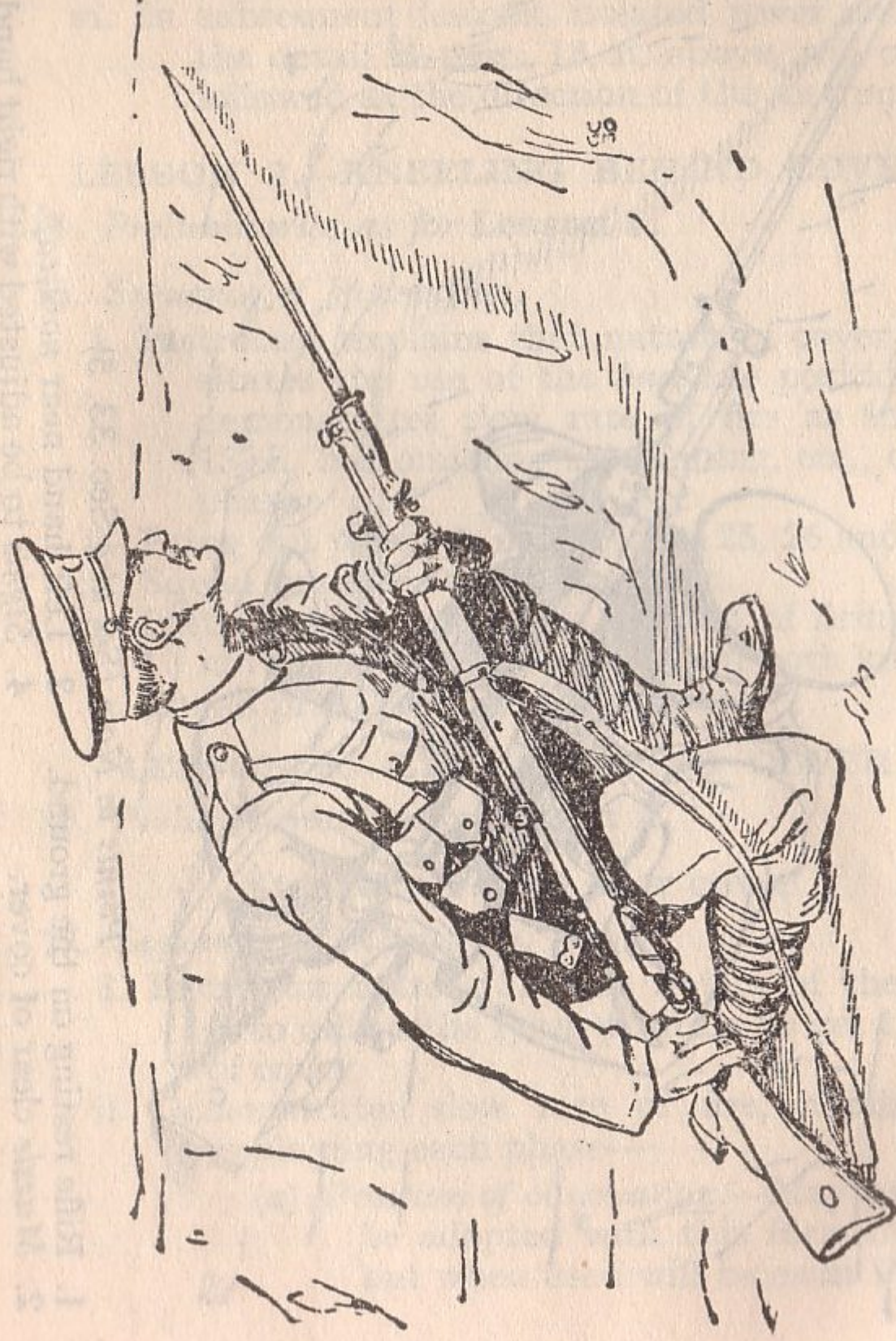
Points to Note (See also Sec. 33, 5)

1. Rifle resting on the ground.
2. Muzzle clear of cover.
3. Left hand near nose-cap.
4. Sights to be adjusted with right hand.
5. Rifle drawn straight back behind cover.

To face page 132]

PLATE 26

KNEELING BEHIND COVER—POSITION OF READINESS



Points to Note (See also Sec. 33, 5)

1. Rifle resting on the ground.
2. Muzzle clear of cover.
3. Left hand near nose-cap.
4. Right hand grasping small of butt.
5. Sling to the right.

To follow Plate 25]

PLATE 27

KNEELING BEHIND COVER—POSITION WHEN FIRING



Points to Note (See also Sec. 33, 5 and 6)
Left elbow resting on left thigh when possible.

To follow Plate 26]

To follow Plate 27]

PLATE 28

LYING BEHIND COVER—POSITION OF OBSERVATION



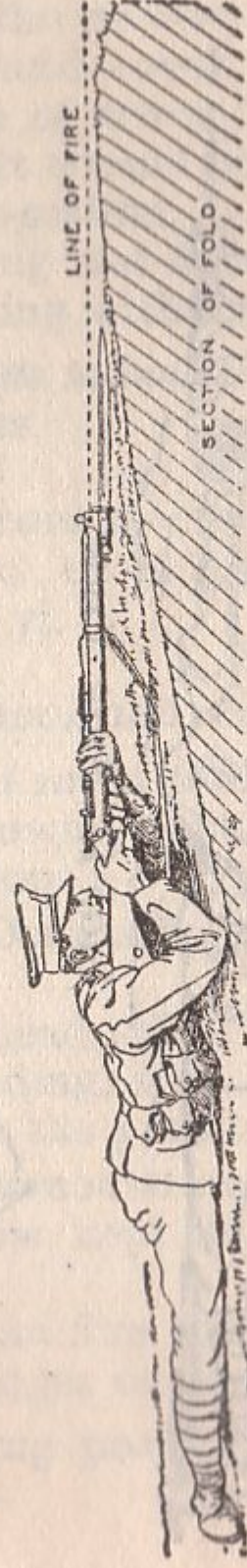
Points to Note (See also Sec. 33, 5)

1. Rifle rested on ground and clear of cover.
2. Sling to the right.

To follow Plate 28]

PLATE 29

LYING BEHIND COVER—SMALL FOLD IN GROUND—POSITION WHEN FIRING



Points to Note (See also Sec. 33, 5 and 6)

Muzzle of rifle clears cover in front.

PLATE 30.

LYING—FIRING ROUND ISOLATED COVER



FIG. 1.—SIDE VIEW

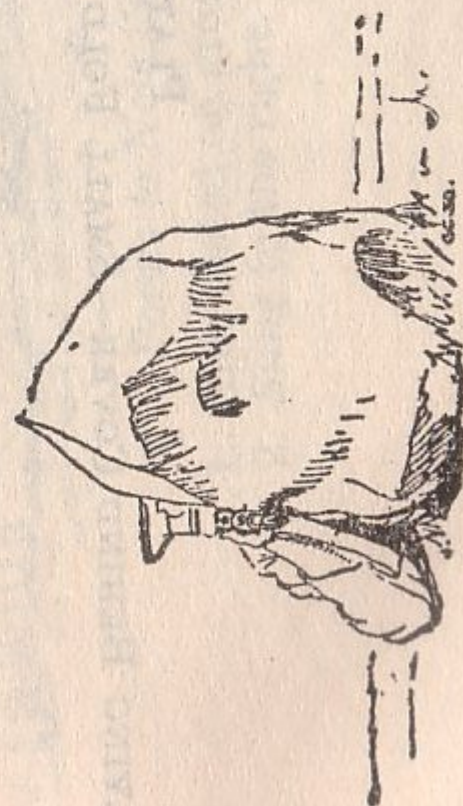


FIG. 2.—FRONT VIEW

Points to Note (See Sec. 33, 5 and 6)

(b) *Position of readiness.*—Normally this is the position taken up when lying behind cover. The rifle will be on top of cover, but when possible the butt should be on the ground.

(c) Sight-setting.

(d) Aiming and firing (Plate 29).

(e) Loading with fresh charger.

iii. Bring out *points to note* (Plates 28 and 29).
iv. Squad practises.

Stage II.—Firing round cover—As for Stage I, omitting naming, etc., of each phase (Plate 30). See Lesson 1, para. 13, vi.

Stage III.—Using isolated cover—As for Stage I

18. *Snapshooting and rapid firing behind cover, standing and kneeling.*—The following *points to note* will be brought out in the demonstrations :—

i. *Snapshooting* :—Demonstrated from the *position of readiness*.

(a) Keep the head still.

(b) After reloading, if no further target appears, return to the *position of readiness*.

ii. *Rapid firing* :—Demonstrate as in i.

(a) Right elbow kept down when working the bolt.

(b) If more than five rounds ordered, load with fresh charger on top of cover.

For firing in the lying position, the teaching for “in the open” will suffice.

34. *Fire discipline training*

1. Fire discipline training is designed to produce—

- i. *In the individual*.—Rapid and accurate obedience to all orders, and a correct and intelligent use of the rifle or light automatic under all circumstances.
- ii. *In the fire unit*.—Good *team* work under its leader, based on individual skill-at-arms, intelligent use of ground, quick recognition, and the confidence each individual has both in himself, his leader and the other men of the fire unit.

2. The **1st or Elementary Stage** consists of the fire discipline training of the individual, and will be carried out with other elementary instruction which forms a considerable part of it, *i.e.* :—

- i. Use of the rifle in the open and behind cover.
- ii. Visual training and recognition.
- iii. Judging distance.
- iv. Rapid fire training.
- v. Range practices on miniature, 30-yards and open ranges.
- vi. Elementary handling of the light automatic.
- vii. Anti-gas training.

During such instruction, fire discipline training will take the form of simple collective exercises to teach accuracy and quick obedience to fire orders, and to develop in each individual correct use of his weapon in accordance with instruction given in the subjects enumerated above.

3. The **2nd or Advanced Stage** of fire discipline training consists of the training of the section as a fire unit and forms part of *Section Training*. It will take the form of exercises for both rifle and light automatic sections arranged so as to produce good *team* work by sections under their leaders, in accordance with the characteristics of the weapons with which they are armed.

4. **1st or Elementary Stage (Rifle).**

This stage is purely drill. The normal firing position is *lying*, which will be used unless other orders are given. *Standing*, *kneeling*, and *sitting* positions will only be practised under conditions when they would be used; in wet weather, however, the *standing* position may be used.

Rapid fire should never be ordered or allowed unless the target justifies its use.

A supposed position of the enemy will always be pointed out, and the instructor will make certain that the aiming mark he describes is visible to every member of the section. The position of the instructor must be that of the fire unit leader in battle (except when working "*At the halt*," see para. 5), until he has completed his fire orders. He will then move about to check faults.

As tactical situations, and hence the use of ground and cover, are not considered in this stage, it can be carried out in the vicinity of barracks.

This stage is carried out first *at the halt* with dummy cartridges, and then *on the move*, when dummies will not be used.

5. *At the halt*.—Easy service aiming marks will be

used, and the ranges given must be approximately correct. The section is halted at ease, extended to one or two paces, with bayonets fixed.

6. Sequence of Instruction.

- i. The instructor gives the order for loading.
- ii. He then gives the range, and the men adjust their sights.
- iii. The fire order is then completed, and the men act on it. The instructor will see that safety catches are pushed forward as soon as the number of rounds has been ordered.
- iv. Fire will be continued until the order "**Stop**" is given, or until the named number of rounds have been fired.
- v. The men are responsible for keeping their rifles loaded.
- vi. The points which the instructor should note *at the halt* are :—
 - (a) Position adopted by the firer, dexterity in manipulation of bolt, loading, safety catch, and buttoning of pouch.
 - (b) Correct adjustment of sights.
 - (c) Recognition of targets.
 - (d) Difference between *Rapid* and *Slow* fire.
 - (e) Difference between "**Stop**" and "**Unload.**"
 - (f) Alertness of the men in attending to fresh orders.
- vii. Every irregularity must be checked.

7. *On the move.*—Rifles will be *loaded* before the exercise begins, the men extended to suitable intervals and the lying position adopted.

8. Sequence of Instruction.

- i. The section is given the caution that it is about to move. This caution will not be given as an executive order, and the men will perform the preliminary movements laid down in Sec. 30, Lesson 3, Stage I, iii.
- ii. On the order or signal "**Advance,**" the section moves forward, maintaining correct intervals.
- iii. On the order or signal "**Halt,**" the section adopts the lying position, unless otherwise ordered.
- iv. Simple fire orders are given, a sufficient pause being made after each part of the order to ensure that it has been acted on.
- v. Instructor checks individuals.

9. 1st Stage (Light Automatic) :—

This will comprise instruction in *Elementary Handling* as laid down in Vol. II.

10. 2nd or Advanced Stage (Rifle) :—

This stage will be carried out on any suitable piece of ground having small undulations and minor irregular features. It is designed to teach and practise the man in :—

- i. The duties already mentioned in 1st Stage.
- ii. The use of ground in relation to cover, movement and fire effect.
- iii. Initiative and judgment.

11. Situations should be prepared beforehand by the instructor, if possible with men, or, failing that, with suitable targets, so that the men in the section will be practised in carrying out their duties under the following conditions :—

- i. In both collective and individual fire whether under control of the leader or not.
- ii. When a complete fire order has been given, *i.e.* when definitely under control.
- iii. When acting individually, *i.e.* when only a hasty or incomplete fire order has been given, or when it has not been possible to give any order.

12. Sequence of Instruction.

- i. Dummy cartridges will not be used. When situations are presented in which the enemy is supposed to be within 300 yards, bayonets will be fixed.
- ii. The section advances over the area selected for the exercise in extended order, rifles "loaded."
- iii. A pre-arranged situation is presented.
- iv. The instructor gives an order for the occupation of a suitable fire position.
- v. The section halts, each man adapting his position to suit the ground.
- vi. The instructor gives an appropriate fire order, then checks each individual and comments on the probable fire effect from the section as a whole.

13. As proficiency increases, more difficult situations should be introduced until finally the action of individuals, when control is only partial or non-existent, is included. Anticipatory fire orders should occasionally be given.

14. The duties which should be carried out efficiently by the men in a well-trained fire unit, whether wearing respirators or not, under the conditions enumerated in para 11, i, ii and iii respectively, are as follows :—

i. In both collective and individual fire :—

- (a) Refilling magazines whenever necessary.
- (b) Making proper use of the safety catch.
- (c) In the advance, getting up and down quickly.
- (d) Making the best use of cover.
- (e) Never pressing the trigger without taking a correct aim.
- (f) Observing the enemy.

ii. In addition, when a complete fire order has been given—

- (a) Adjusting the sights for the range ordered.
- (b) Recognizing the aiming point described.
- (c) Counting the number of rounds fired.
- (d) Limiting his rate of fire to that ordered.

iii. When only a hasty and incomplete fire order has been received, or when the men are supposed to be acting individually, in addition to i, above—

- (a) Selecting targets.
- (b) Judging distance.
- (c) Adjusting sights.
- (d) Using the rate of fire necessary.

15. 2nd Stage (Light Automatic) :—

The above principles will be adhered to in carrying out this stage on the lines indicated in *Advanced and Section Handling* (see Vol. II).

TESTS OF ELEMENTARY TRAINING

35. General

1. Advanced weapon training and range practices are a waste of time and ammunition unless those taking part have reached a certain standard of efficiency.

The tests of elementary training give the required standard. They are designed—

- i. To ensure that recruits have reached an efficient standard before they begin range practices.
- ii. To ensure that trained soldiers are efficient.
- iii. To provide a standard which the Territorial Army and technical troops should aim at reaching according to the time available for training.
- iv. To prevent any detail of elementary training being overlooked.
- v. To enable officers charged with the preparation of individual training programmes to determine what proportion of the time available should be allotted to the various subjects.

2. A record of the results of individual tests will be kept by squadron and company commanders, showing the dates on which the tests were carried out. Records of tests will be inspected periodically by unit commanders.

3. Extracts from the records of tests will always be furnished by the squadron or company commanders

concerned when a soldier is transferred from one squadron or company to another. In addition, recruits and trained soldiers will have a record of their performances kept for them in their Record Books.

4. It is important that teaching should not be confused with testing. In the former, men are instructed by explanation and demonstration, followed by execution; while in the latter, men are questioned or ordered to carry out a certain test without any demonstration or assistance, and they either pass or are put back for further instruction. The conditions of each test will be explained to individuals or sections prior to carrying it out.

5. Tests are divided into—

- i. Oral Tests.
- ii. Inspection Tests of—
 - (a) Individuals.
 - (b) Fire units.
- iii. Standard Tests.

The method of conducting these tests is described in Secs. 36 and 37. Certain individual tests must be carried out by testing one man at a time, while other individual tests may be carried out collectively, which should be done whenever possible.

6. During instruction in aiming and firing, the attention of recruits will be drawn to these tests, so that they will realize from the first what standard will be expected from them.

36. Method of conducting the oral and inspection tests

ORAL TESTS

1. **Care of rifle and ammunition.**—Questions should be put to each man.

2. **General knowledge.**—Questions should be put to each man regarding the objects of, and reasons for, various details that have been taught him.

Qualifying standard.—Three out of four to be answered correctly.

INSPECTION TESTS

Individual

3. **Firing positions in the open.**—Bayonets fixed except for recruits. Men will be inspected in loading, aiming and firing the rifle in the standing, kneeling and lying positions. Those who make any serious faults will fail.

4. **Firing positions behind cover.**—Bayonets fixed. Inspections as in para. 3, but behind suitable cover. Those who make serious faults will fail.

Fire Unit

5. **Fire discipline.**—This is a test of the fire unit as a whole. It may be applied by a platoon or higher commander to ascertain the efficiency for war of one or more of the fire units under his command.

i. *Method of conducting*—

(a) **Preliminaries.**—As laid down for an exercise in the advanced stage of *Fire Discipline Training* (Sec. 34).

(b) The section commanders of the section undergoing the test will be taken over the ground shortly before the test, and the selected situations will be explained and action required from the section commander in each situation rehearsed.

(c) Each section in turn will be tested under its own commander. Sections waiting to be tested should be kept out of sight; those who have been through the test can watch the others being tested.

(d) The section commander will remain in his correct position as the fire unit commander throughout the test. He will not move about to correct faults. His rôle is solely that of fire unit commander, and he must concentrate upon giving the orders necessary to produce the action decided upon for each situation at the previous rehearsal.

ii. **Standard of efficiency required.**—Each situation will be designed to test the efficiency of the men forming the fire unit in carrying out certain of the duties laid down in Sec. 34, 14. The section, as a fire unit, will pass or fail in the test according to its standard of efficiency in working as a team under its commander. The section commander himself is not under test.

37. Method of conducting the standard tests

1. Adjustment of sights.—Four distances will be named. The position of the individual being tested will be varied, *i.e.*, standing, kneeling and lying. Bayonet fixed except for recruits.

Variations between distances ordered will not exceed 400 yards.

Standard.—Three correct adjustments out of four. Each within three seconds, time to be taken from the last sound of the range given to the moment when the slide is fixed.

2. Regulation aim.*—Tested from aiming rests at *small target*, 200 yards.

Standard.—Three out of four aims must be correct.

3. Trigger pressing.—Trigger pressing will be tested by means of the aim corrector. Accuracy of aim and correct trigger release are essential. Bayonets fixed except for recruits.

Target.—Any distinct aiming mark.

Standard.—Three correct trigger releases out of four.

4. Aiming off.†—Tested from aiming rests. The men

* In the Territorial Army this test may be carried out on *representative* targets.

† In the Territorial Army this test will be carried out with rifles and aiming rests, using *representative small, large and snapshooting* targets at a distance of 25 yards.

Men will be ordered to aim their rifles a certain number of feet, in the case of *small* or *large* targets, or target widths in the case of *snapshooting* targets, right or left of the aiming mark.

Limits.—For *small* and *large* targets, 2 ft. and 3 ft. respectively; for *snapshooting* targets, two widths.

will be ordered to aim their rifles, up to two widths, right or left of a *Fig. No. 2 silhouette target* at 300 yards. One foot (six inches either side) of lateral error only will be allowed, measured from the correct point of aim.

The instructor will satisfy himself that correct elevation is maintained. If in doubt as to whether elevation has been gained or lost, he will treat the aim as correct. If satisfied that correct elevation has not been maintained, the aim will be treated as incorrect.

Standard.—Three correct out of four.

5. Snapshooting.—The time required to bring the rifle from the loading position to the shoulder on the command "**Fire,**" to align the sights on an aiming disc held to the eye, and to press the trigger, will be measured with a stop-watch (or ordinary watch with a second hand). Position—lying. Bayonets fixed.

Standard.—Three out of four aims to be correct, each within four seconds.

6. Rapid loading.—The men to be tested will be equipped with a bandolier or pouches, and six

Four aims will be laid—

Two at the *small* target.

One at the *large* target.

One at the *snapshooting* target.

Standard.—Three correct aims out of four. When checking the aims, loss or gain in elevation will entail failure. Reasonable allowance will be made for lateral errors.

To lay an aim given in feet correctly on the surface of the *representative small* or *large* targets, men must apply their knowledge of range target dimensions, *e.g.*, 1 ft. right would necessitate an aim at the estimated position of the inner ring on the *representative small* target, just as it would on the *small* range target.

chargers filled with dummy cartridges. Position—lying. Bayonets fixed, except for recruits.

Unless the dummy cartridges used in this test are serviceable, the test will be useless. Cartridges that have been in constant use for practice are usually unsuitable.

The *chargers* will be placed in the pouches or bandolier, which will be buttoned over them.

On the word "**Go**" the time required to load, close the breech and eject the cartridges will be noted. The following conditions must be fulfilled:—

The rifle held in the correct loading position; one *charger* inserted at a time; the pouch or bandolier, whether empty or not, buttoned up every time a *charger* is withdrawn.

Standard time.—One minute.

7. Rapid firing.—This test will be a combination of 5 and 6. On the word "**Go**," the man will load with one *charger* at a time from the pouch or bandolier and fire ten rounds at an aiming disc held to the eye; the pouch will be buttoned up each time a *charger* is withdrawn. Position—lying. Bayonets fixed.

Standard time.—One minute from the moment the word "**Go**" is given; eight shots out of ten to be correct.

8. Recognition of targets and aiming points.—The men being tested should each have an aiming rest. The instructor will describe some difficult aiming point. The men aim their rifles at the point which they recognize from the description. Four points will be indicated for every man tested, one point at least to include the use of degrees.

Standard.—Three out of four points described must be recognized, of which one will be a measurement in degrees without a clock ray or description of aiming point.

9.* Judging distance.—This test will be carried out three times during the Weapon-Training Year (Sec. 48, 8).

10. Grouping with miniature ammunition:—

For recruits, *see* Table A, *Empire Test*.

For trained soldiers the standard will be a 2-inch group at 25 yards.

11.* Adjusting respirator, loading and sight-setting.—This test is to be carried out in marching order. The men to be tested will be in the lying position, respirators in the *alert* position, slide of backsight right down. Bayonets fixed, except for recruits. On the command "**Gas—Four Hundred**," or any other range not necessitating a movement of the slide of more than 400 yards, the men will—

- i. Put on their respirators.
- ii. Load with five rounds from the pouch.
- iii. Button up the pouch.
- iv. Set their sights to the range ordered.

Standard time.—22 seconds.

EXERCISING THE TRAINED SOLDIER

38. System

1. When exercising the trained soldier, the method adopted for recruit instruction will be modified, and the

* These tests need not be carried out in Territorial Army units.

system employed will be that of practising the soldier in the use of his weapons, rather than teaching him.

2. The aim of the instructor should be to ensure that all the men of his section or squad are being practised according to their several requirements and efficiency, that interest is maintained and monotony avoided. Only such practices will be carried out as are necessary to maintain efficiency and avoid failures in the *Tests of Elementary Training* (Secs. 35 to 37).

3. Detail should not be necessary, except in the case of backward men who may receive training similar to that given to recruits in those subjects in which they are inefficient.

4. Programmes of work will be framed so that exercises which require muscular work alternate with those in which men may sit or stand easy.

39. Specimen programmes

1. The following programmes, each of one hour's duration, are inserted here with a view to assisting officers in carrying out the individual weapon training of their men. The programmes are divided into three categories, suitable for indoors, barrack square, or open country.

INDOORS

No. 1. *Stores required.*—Aiming Discs. Landscape Targets. Dischargers. Dummy Grenades.

Time. Mins.	Subject.	Detail.
15	Snapshooting, rapid firing and preparatory exercises.	1. Clean and quick handling. 2. Reloading at the shoulder and first pressure. 3. Rapid Fire.
10	Care of Arms	Cleaning the Rifle. Question and answer.
5	Firing Instruction	Strengthening Exercise No. 2.
10	Visual Training	Military Vocabulary.
10	Grenades	Changing Rifleman to Rifle Bomber.
10	Grenades	Description H.E. Grenade.

No. 2. *Stores required.*—Dummy Grenades. Respirators.

Time. Mins.	Subject.	Detail.
15	Firing Instruction	Loading and Firing: all positions, in Respirators.
10	Care of Arms	Elementary Mechanism.
15	Quickening Exercise	Loaders v. Fillers. Competitive. (With dummies.)
10	Grenades	Points before and after Throwing or Firing Live Grenades.
10	Quickening Exercise	Quick handling and firing.

No. 3. *Stores required.*—Dummy Grenades.
Landscape Targets.

Time.	Subject.	Detail.
Mins. 10	Firing Instruction	Strengthening Exercise No. 1.
10	Aiming	Questions on Wind, Elevation and Movement Tables.
15	Quickening Exercise	Rapid Loading. Competitive. (With dummies.)
10	Grenades	Description and Handling Smoke and Signal Grenades.
5	Firing Instruction	Strengthening Exercise No. 3.
10	Visual Training	Recognition on Landscape Targets.

BARRACK SQUARE

No. 4. *Stores required.*—Representative Small and Large Targets. Aiming Rests.

Time.	Subject.	Detail.
Mins. 15	Rapid Firing	Lying Position. Preparatory Practices—Rifle :— (a) In loading position. (b) In aiming position.
10	Care of Rifle	Causes of Wear } Question and Answer. Kinds of Fouling Gas Escapes

No. 4. *Stores required.*—Representative Small and Large Targets. Aiming Rests.—*continued.*

Time.	Subject.	Detail.
Mins. 15	Bayonet Training	Squad Formation. High Port. Long Point. Controlled Charge.
15	Aiming Instruction	Accuracy of aim. Section lays aims— (a) Representative Small Target. (b) Representative Large Target.
5	Firing Instruction	Strengthening Exercise No. 1.

No. 5. *Stores required.*—Small and Large Representative Targets. Dischargers. Dummy Grenades. Landscape Target. Training Sticks. Aiming Rests.

Time.	Subject.	Detail.
Mins. 15	Fire Discipline Training	1st stage— (a) At halt. (b) On move.
10	Aiming Instruction	Lesson 2. Questions on Wind Table. Practice in aiming off and keeping elevation.
15	Grenades	Changing from Rifleman to Rifle Bomber.
10	Visual Training	Recognition on Landscape Target.
10	Bayonet Training	Lesson 6. Parries.

No. 6. *Stores required.*—Aiming Discs.
Training Sticks.

Time.	Subject.	Detail.
Mins. 15	Rapid Firing	Including Preparatory Practices.
10	Section Battle Formations ...	Arrow head—line—file—single file. Extensions—at halt and on move.
10	Aiming Instruction	Questions on Wind, Elevation and Movement Tables.
10	Bayonet Instruction	Practise long and short points at training stick.
10	Care of Arms	Questions on Cleaning.
5	Firing Instruction	Strengthening Exercises Nos. 1 and 2.

No. 7. *Stores required.*—Training Sticks.
Dischargers.

Time.	Subject.	Detail.
Mins. 15	Firing Instruction	Kneeling and Standing Positions. Advancing at the High Port, halting and coming to the aim, aligning the <i>sights</i> on some indicated point.
10	Care of Arms	Questions on Jams and Remedies, and on Mechanism.
15	Bayonet Training	Exercise with Training Stick.
10	Grenades	Fixing Discharger and Range Setting.
10	Quickening Exercise ...	Rapid Loading Competition.

OPEN COUNTRY

No. 8. *Stores required.*—Dischargers.
Dummy Grenades. Aiming Rests.

Time.	Subject.	Detail.
Mins. 10	Grenades	Firing, all positions.
10	Visual Training	Recognition.
15	Firing Instruction	Firing behind cover.
20	Judging Distance	At objects up to 800 yards.
5	Firing Instruction	All strengthening exercises.

No. 9. *Stores required.*—Silhouette Targets put out.
Dischargers. Dummy Grenades.

Time.	Subject.	Detail.
Mins. 15	Fire Discipline Training ...	2nd Stage. In the open.
15	Visual Training	2nd Stage. Silhouette Targets.
10	Quickening Exercise ...	Rapid Loading Competition.
10	Grenades	Changing from Rifleman to Rifle Bomber.
10	Visual Training	Recognition.

No. 10. *Stores required.*—Bayonet Sacks.
Snapshooting and Silhouette Targets, and L.A.

Time.	Subject.				Detail.
Mins.					
15	Bayonet Training	...	...	...	Long point and short point at sacks.
10	Firing Instruction	...	...	...	Snapshooting and Silhouette Targets. 100–300 yards. Exposure, four seconds.
15	L.A. ...	...	...	...	Handling Exercises.
10	Visual Training	...	...	...	Examination of ground. Description of Lines and Areas.
10	Quickening Exercise	...	...	...	Rapid Loading Competition.

CHAPTER IV

THE BAYONET

40. *General instructions*

1. The bayonet is an individual weapon, but, as with the rifle, full effect will be gained only by the collective efforts of platoons or sections. It is the weapon for hand-to-hand fighting, and its use, or the threat of it, will often enable infantry to drive the enemy from his position or cause him to surrender. It is the principal infantry arm for night fighting.

2. The bayonet is essentially a weapon of attack. Troops threatened with a bayonet attack should endeavour to meet it with a counter-attack.

3. In a bayonet assault, the greatest effect will always be attained by a steady, disciplined advance of troops in formation, such as when attacking under a barrage. But, once hand-to-hand fighting begins, it is unlikely that any regular formation can long be maintained. Similar conditions will occur in unexpected encounters by small bodies of men in woods, confined places, or at night. In such circumstances each man must continue the attack until his opponents are either killed or surrender.

4. The object of bayonet training will be to fit the soldier to take his place as one of a team, with confidence

in his own and his comrades' skill with their weapons, and thereby imbued with a mutual determination to close with the enemy. The importance of the offensive will therefore be emphasized throughout training, methods of meeting an attack being taught solely as a means of gaining time or opportunity to take the offensive. The result will depend on determination, individual skill and team work.

41. *Methods of training*

1. It is difficult in training, owing to reasons of safety, to reproduce conditions similar to those likely to exist in war, but instructors should throughout keep these conditions in mind and instil them into the men. It is also as impossible to drill men into becoming good bayonet fighters as it is undesirable for those of different physique to adopt exactly the same style. Words of command will, therefore, be reduced to a minimum and men encouraged to develop a style suitable to their size and build, provided the methods of bayonet fighting laid down are adhered to.

2. Once hand-to-hand fighting begins, it should be the instinctive action of the man either—

- i. To go straight for an opponent, who may or may not have offered some opening; or
- ii. First to parry an opponent's attack and then immediately counter-attack.

3. In training the individual these two methods will be known as—

- i. The direct attack.
- ii. The counter-attack.

4. Collective team work consists of—

- i. Preliminary stage—charge and counter-charge exercises.
- ii. Advanced stage—assault practice.
- iii. Competitions.

5. *Pointing.*

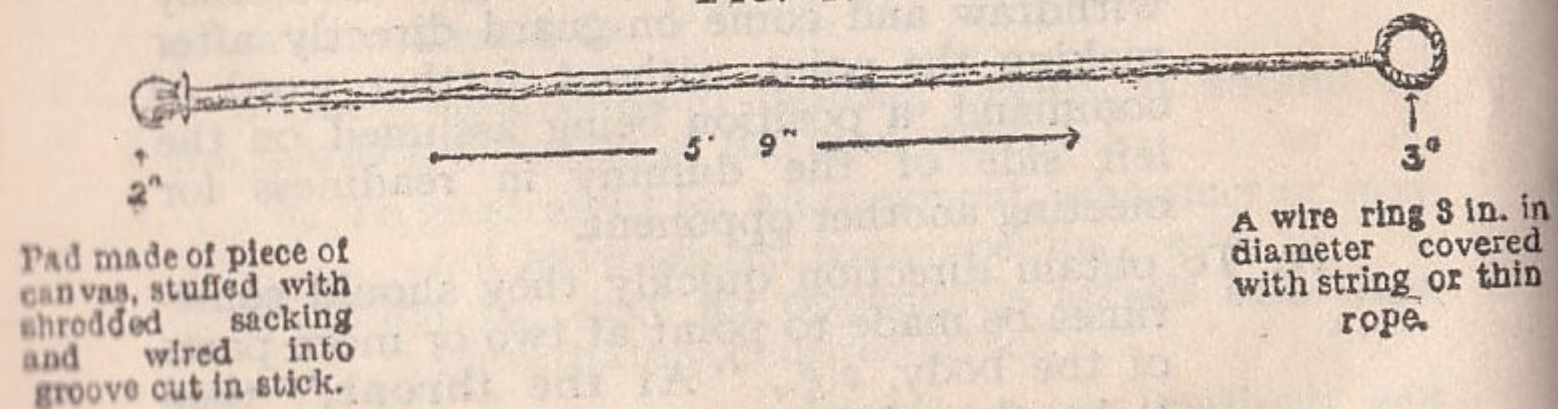
- i. Men should always be made to point at a target, *i.e.*, at a named part of the body of an opponent. This will usually be represented by a dummy on which marks will be painted, indicating vulnerable parts. (See Vol. V, Sec. 39.)
- ii. Long and short points will first be carried out with pauses, each action being distinct, *e.g.*, “**At the throat**” (long pause) “**Point**” (a pause) “**Withdraw.**”
- iii. As progress is made the pause between the point and withdrawal should be shortened until the men reach a stage when they withdraw and come on-guard directly after making the point without further word of command, a position being assumed on the left side of the dummy in readiness for meeting another opponent.
- iv. To obtain direction quickly they should sometimes be made to point at two or more parts of the body, *e.g.*, “**At the throat,**” then “**At the right groin—Point.**” For the purpose of direction, the right or left will be considered to be the right or left of the man pointing.

- v. Unless the rifle is firmly gripped, it is liable to injure the hands.
- vi. During bayonet training the actions of rifles will be cocked and safety catches applied. The use of the bullet must never be overlooked.

6. By his own example the instructor must instil a spirit of energy and alertness in his squad. During bayonet training all movements of individuals or squads, unless otherwise specified, will be carried out at the double. Words of command should be replaced by quick signs or signals, preceded by such caution as is necessary. The squad will thus be quickened up to work by eye and ear as rapidly as possible.

Whenever possible, squads will work in pairs as "Master and Pupil." In uneven squads the odd man will be given an opponent in the opposite rank, *i.e.*, two men point at one man.

FIG. 17



7. *The training stick* (Fig. 17) and its method of use.

- i. From the outset of bayonet training the training stick will be in constant use as a

means of (a) quickening the man in all actions taught; (b) obtaining good direction; and (c) exercising the trained soldier.

- ii. Efficient instruction with the training stick forms the most important part of bayonet training. It is essential that the stick should be always used with vigour and that the stick and ring should be of the correct dimensions. The individual using the stick will act as "Master" and the individual using the bayonet as "Pupil." The value of the practice to the pupil depends entirely on the energy displayed by the master.

- iii. For exercising trained soldiers or for quickening up at any period of instruction after the training stick has been introduced, the instructor, by forming his squad round him in a circle, can exercise each man in turn in all points, parries, etc., that he wishes. To keep the men still further on the alert he may occasionally face them outwards, each man turning about and fighting the stick when touched. In this method, however, the benefit of watching the actions of others will be lost.

8. **The Controlled Charge** (Sec. 43) will be introduced at the end of Lesson 1. It should be carried out as a daily exercise until sufficient progress is made, when the **counter-charge**, and later the **controlled charge** and **counter-charge combined**, may be introduced.

The Assault Practice (Sec. 43) provides a method of exercising the trained soldier, but will only be carried out after the men of the section have been thoroughly trained in all individual lessons and have acquired complete control of their weapons; otherwise injury to rifles and bayonets will result.

9. **Care of weapons.**—Great care should be taken that the object representing the opponent and its support should be incapable of injuring the bayonet or butt. Only light sticks are to be used for parrying practice. The points of bayonets will be kept sharp.

When using the training stick, the scabbard should be tied on. This can be done by means of a loop of string fixed to the scabbard stud and tied round the piling swivel or foresight protectors.

The chief causes of injury to the bayonet are insufficient instruction in the bayonet training lessons, failure to withdraw the bayonet clear of the dummy before advancing, placing the dummies on hard, or unprepared ground, and using unsharpened bayonets.

42. *Individual instruction*

LESSON I.—“ON-GUARD”—“HIGH PORT”

1. *Preliminaries*—

i. *Stores required* :—Rifles and bayonets.

ii. Squad falls in in single rank, bayonets fixed, scabbards on, actions cocked and safety catches applied.

iii. Number off. Instructor explains action of squad on command—

“**For bayonet training—Move,**” *i.e.*, odd numbers double forward eight paces, turn about and cover the even numbers who will open to about five paces’ interval.

“**Reform single rank—Move,**” Squad returns to original formation.

iv. Squad practises this formation by word of command on any prearranged signal from the instructor which will cause the squad to move quickly, using sense of sight or hearing.

2. *Sequence of instruction.*—Explain object of all bayonet training (Sec. 40, 4). State that this lesson is “On-guard” and “High Port.”

Stage I.—“On-guard.”

i. Give complete demonstration of “on-guard” and “rest,” and inform squad that, in an assault, the attacking infantry will bring the rifle into the “on-guard” position during movement when about ten yards from the enemy. The position will also be used when an individual is about to engage in close combat with an opponent.

ii. Repeat the demonstration with detail—

(a) “**On-guard**” from the “Order.”—Take a full walking-pace forward with the left foot, and at the same time cant the rifle forward, adopting a threatening attitude. Legs in a natural

position, left knee slightly bent. The rifle held in a firm grip with both hands. The right hand at the centre of the waist, grasping the *butt* just behind the *small* but with one or two fingers round it. The left hand holding the rifle at the most convenient position in front of the *backsight*, with knuckles to the left; left arm slightly bent. The point of the bayonet directed at the opponent's throat. (Plate 31.)

(b) "Rest" from "On-guard."—Place the *butt* on the ground without moving the feet.

- iii. Squad practises individually. Instructor checks each man separately.
- iv. Further practice by word of command.

Stage II.—"High Port" from the "Order."

- i. Give complete demonstration and inform squad that this position is suitable for close formation, reduces the risk of accidents when crossing obstacles and can be maintained with the left hand alone, allowing free use of the right if required. It is the most convenient position for the rifle when either the use of the bullet or the bayonet may be suddenly required, such as when attacking under cover of a smoke screen.
- ii. Repeat demonstration with detail—
 "High Port."—Bring the rifle to a diagonal position across the body, grasping it as in the

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PLATE 31
ON-GUARD



To follow Plate 31]

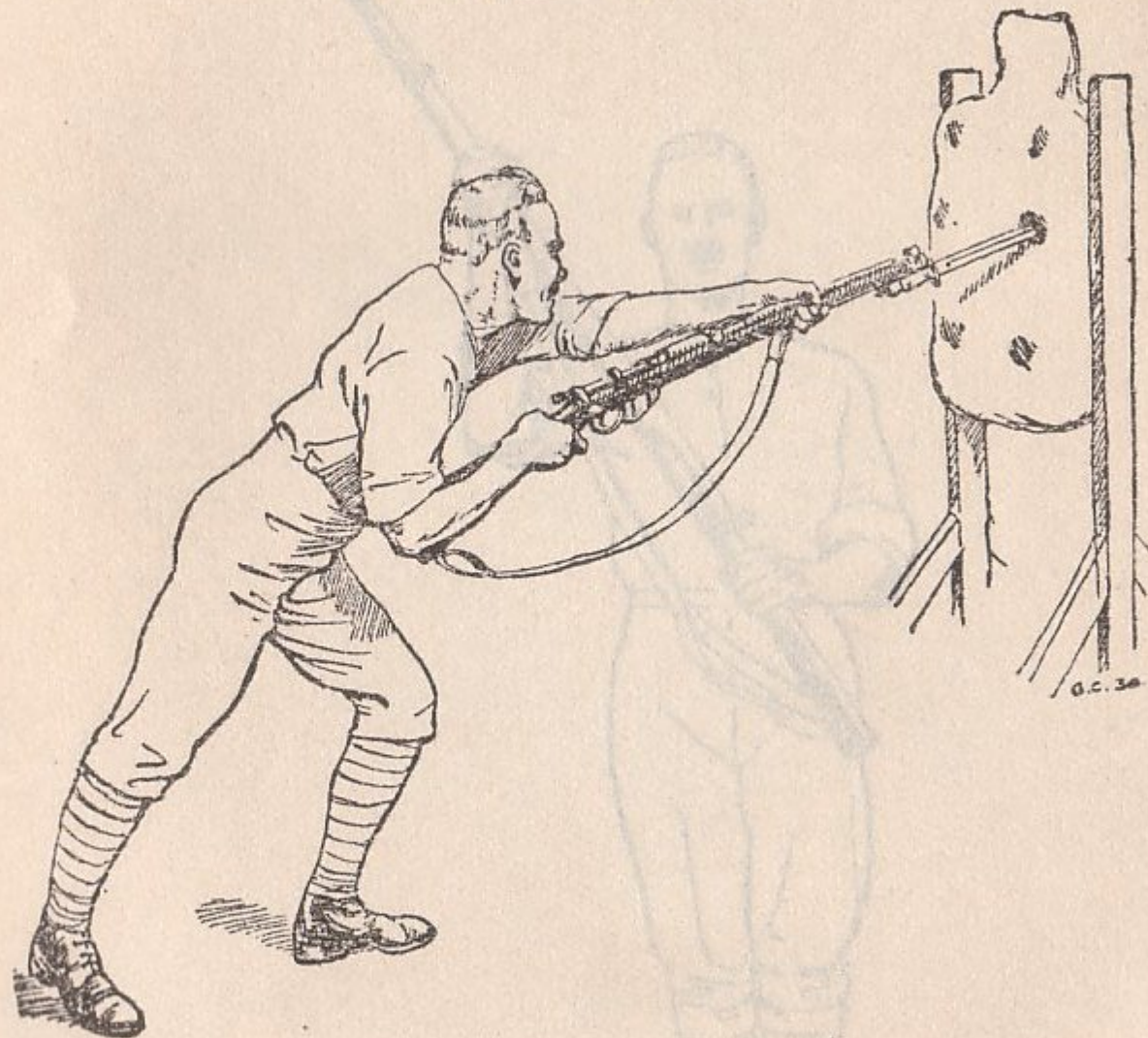
PLATE 32
THE HIGH PORT



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PLATE 33
THE LONG POINT



"on-guard" position. The *muzzle* pointing upwards, *magazine* to the front and the *butt* sufficiently advanced to be brought instantly to the shoulder to fire the rifle. (Plate 32.)

- iii. Squad practises individually. Instructor checks each man separately.
- iv. Further practice by word of command.

Stage III.—"High Port" from "On-guard."

- i. Demonstrate with detail. When "on-guard" at the halt raise the rifle to the "high port" position; at the same time bring up the rear foot level with the other.
- ii. Squad practises by word of command.
- iii. Instructor explains how ranks will pass one another, *i.e.*, right shoulder to right shoulder.
- iv. Squad practises "on-guard" and "high port" both in quick time and at the double in single rank extended to two paces. Instructor explains the necessity for keeping point of the bayonet directed on some mark in front when in the "on-guard" position.

LESSON 2.—"LONG POINT"

1. *Preliminaries*—

- i. *Stores required*.—Rifles and bayonets; standing and ground dummies; training sticks.
- ii. Form squad in two ranks about ten yards from and facing dummies.

- iii. Each file covers off a dummy.
- iv. Scabbards removed and placed on ground.
- v. Call out one man and indicate vulnerable parts of the body, *e.g.*, throat, right and left breast, stomach, right and left groin, kidneys.

2. *Sequence of Instruction*—

- i. Squad on right of dummies.
- ii. State this lesson is the "Long Point."

Stage I.—"Stationary Long Point" and "Withdraw."

- i. Give complete demonstration of "long point" and "withdraw," and inform the squad that a "long point" is made against an opponent at a range of about four to five feet from the attacker. In fighting it is important to judge this distance accurately.

- ii. Repeat demonstration with detail—

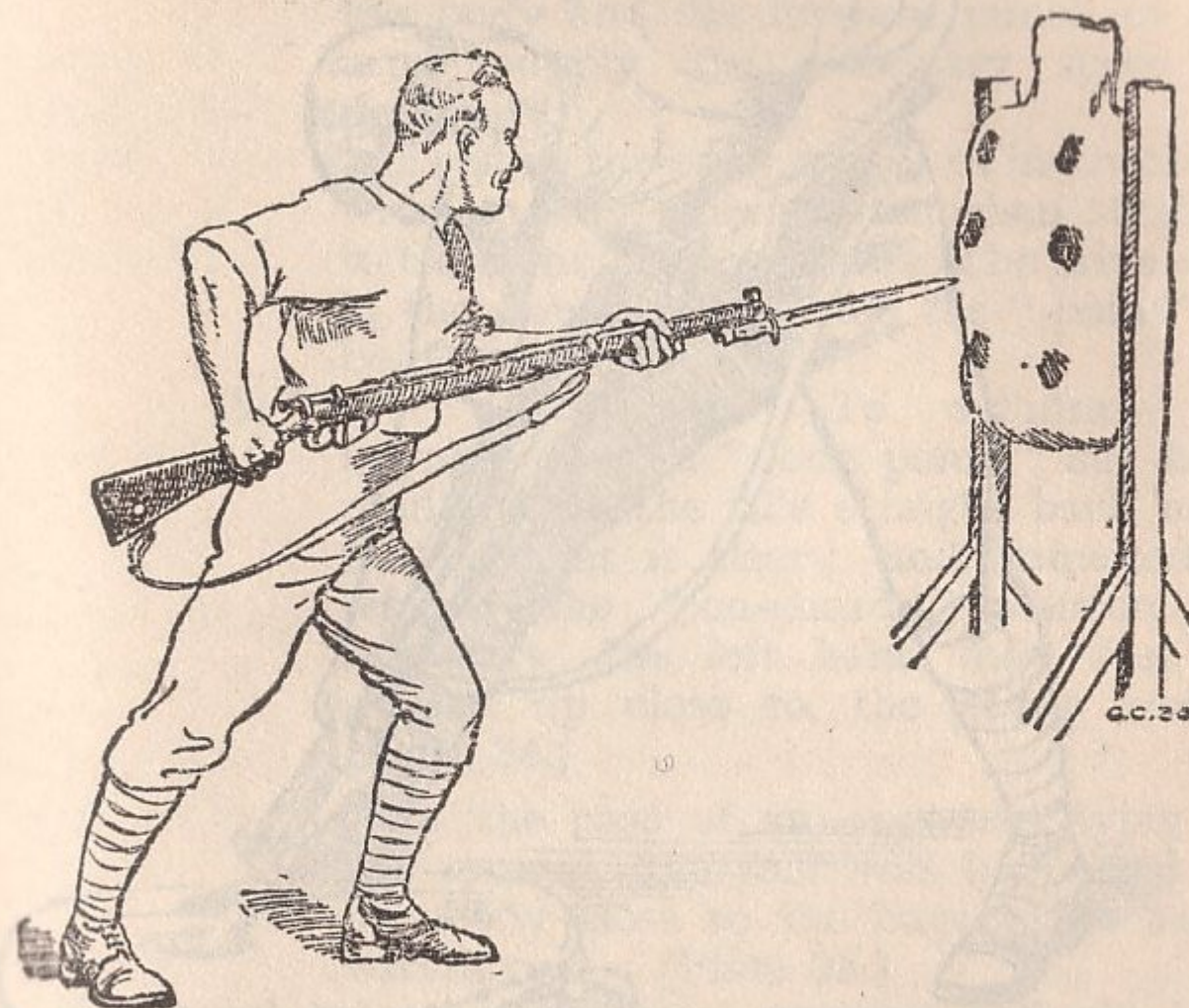
(a) The "Long Point."—Grasping the rifle firmly, deliver the point from the "on-guard" position to the full extent of the left arm, *butt* running alongside and kept close to the right forearm. Body inclined forward; left knee bent, right leg braced and the weight of the body pressed well forward with the fore part of the right foot, the heel being raised. (Plate 33.)

The power of a "point" is derived from the right arm and rear leg, with the weight of the body behind it; the left

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PLATE 34

THE WITHDRAWAL FROM LONG POINT



To face page 165]

PLATE 35

THE WITHDRAWAL (USING FOOT)



arm is used to direct the point of the bayonet. The eyes must be fixed on the object at which the "point" is to be made.

The rifle will never be drawn back to make a "long point"; the impetus of the body and the forward punch of the arms supply the necessary force to penetrate.

Even in the early stages of instruction, when making points other than straight to the front, the rear foot will be advanced in the direction in which the "point" is being made.

- (b) The "**Withdraw.**"—To withdraw the bayonet after a "long point" has been made, draw the rifle straight back until the bayonet is clear; and immediately resume the "on-guard" position. If necessary, the left hand may first be slipped up close to the *piling swivel*. (Plate 34.)

In the case of an opponent lying on the ground, the foot will be placed on the body close to the bayonet to assist withdrawal. (Plate 35.)

- iii Squad returns to original position and practises as follows:—

- (a) "**Front rank—on-guard—ready.**"—Rank place themselves in front of dummies. Instructor checks correct distance.

- (b) "At . . . point and remain—point."
—Check faults.
- (c) "Withdraw and remain—withdraw."
—Check faults.
- (d) "On-guard."
- (e) Give practice in two or three points complete without pauses.
- (f) "Pass through."—Front rank passes through dummies in "on-guard" position. After clearing dummies, comes to "high port," and when about ten yards from dummies halts, turns about and rests.
- (g) Repeat for rear rank.

Stage II.—"Long Point" stepping in with rear foot.

- i. Squad on right of dummies.
- ii. Give complete demonstration and inform squad that this is the method of delivering a "point" when advancing.
- iii. Repeat demonstration with detail. This is the same as "stationary long point" except that the rear foot is brought forward as the "point" is delivered. If a strong withdrawal is required, the left hand *may* be slipped up the rifle to assist. This applies to all "points" stepping in or advancing.
- iv. Squad returns to original position and practises as follows:—
 - (a) "Front rank—on-guard—ready."—Check distance.

- (b) "At . . . point and remain—point."
—Check faults.
- (c) "Withdraw and remain—withdraw."
—Check faults.
- (d) "Pass through."
- (e) Repeat for rear rank.
- (f) Repeat without pauses.

Stage III.—Delivering a "point" advancing at the walk or double.

- i. Squad on right of dummies.
- ii. Demonstrate "long point" advancing at a walk. Made as any other "long point," but delivered on the move.
- iii. Squad returns to original position and practises—no pauses between "point" and "withdraw."
- iv. Squad on right of the dummies.
- v. Demonstrate "long point" advancing at the double.
- vi. Squad practises.

Stage IV.—Practice with Training Stick.

- i. Instructor orders—
 - (a) "Scabbards on."
 - (b) "Single rank—Fall in."
 - (c) "For bayonet training—Move."
- ii. Instructor calls squad round him and explains *training stick*. The *padded end* will represent whatever the instructor may decide, *i.e.*, the point of the opponent's bayonet or his head. When it is directed towards the man, but out of his reach, he will immediately assume the "on-guard" position. The *ring* will represent

a vulnerable part of the body in any position named by the instructor. Whenever the *ring* is presented an advancing point will be made at it. The most practical method of holding the stick is as follows :—

With the *padded end* forward, adopt the "on-guard" position with the left hand at the point of balance, the right hand at a convenient distance from the *ring end*. By this means the position of either hand need never be changed, no matter what action is being practised, and complete control of the stick is maintained at all times. (Plate 41, facing page 180.)

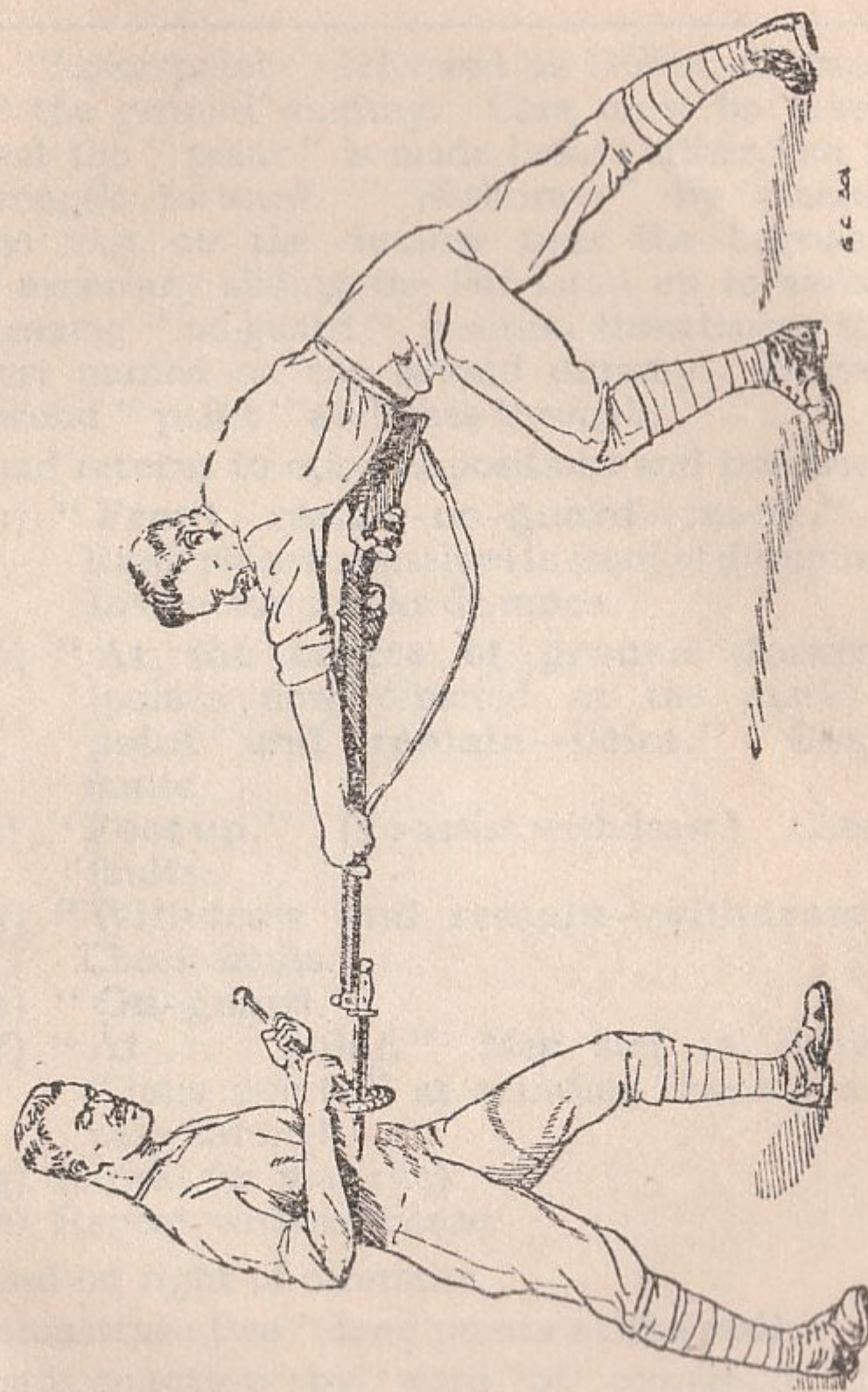
- iii. Instructor calls out one man who is told to make a "long point" at stick. (Plate 36.)
- iv. Instructor shows correct method of using stick—necessity for man having to step in.
- v. Squad returns to places as in i. (c) and practises the "long point" stepping in, in pairs as "Master and Pupil," the instructor with training stick exercising any individuals he may select.
- vi. Instructor may order squad round him in a circle and exercise each individual in turn.

Stage V.—Two "Long Points."

- i. Ground dummies placed a few feet in front of standing dummies.
- ii. Squad on right of the dummies.
- iii. Give complete demonstration of two "long points" and inform squad they would be used when meeting two opponents in quick succession.
- iv. Repeat demonstration with detail—

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PLATE 36
USE OF THE TRAINING STICK—THE LONG POINT



"Long point" delivered as before, directed at the ground dummy. Care must be taken that the "point" is made before either foot is brought forward. "Withdraw" by placing the foot on the dummy near the bayonet, if necessary sliding the left hand up to assist. Resume "on-guard" position threatening the part named on the second dummy. Deliver second "point" and pass through.

v. Squad returns to original positions and practises.

(a) **"Front rank — on-guard—ready."** — Rank place themselves in front of dummies. Instructor checks distance.

(b) **"At the centre of ground dummy (points now directed at the mark)—point and remain—point."** Check faults.

(c) **"Foot up."** (To assist withdraw.) Check faults.

(d) **"Withdraw and remain—withdraw."** Check faults.

(e) **"On-guard."**

(f) **"At . . . point."** Men step in, deliver "long points" at standing dummy and pass through.

(g) Repeat for rear rank.

(h) Repeat without pause.

vi. Squad on right of dummies.

vii. Demonstrate two "long points at the walk."

viii. Squad practises by word of command. No pauses.

- ix. Demonstrate two "long points at the double."
- x. Squad practises by word of command. No pauses.
- xi. Squad practises two "long points" with the training stick.

LESSON 3.—"SHORT POINT"

- 1. *Preliminaries*.—As for Lesson 2, except (v).
- 2. *Sequence of Instruction*.
 - i. Squad on right of dummies.
 - ii. State that this lesson is the "Short Point."

Stage I—"Short Point" and "Withdraw."

- i. Give complete demonstration from the "withdrawal" position of the "long point" and inform squad that occasions will often arise in which a man will have to deliver a point without having time or room to come "on-guard" before pointing.
- ii. Instructor repeats demonstration with detail—

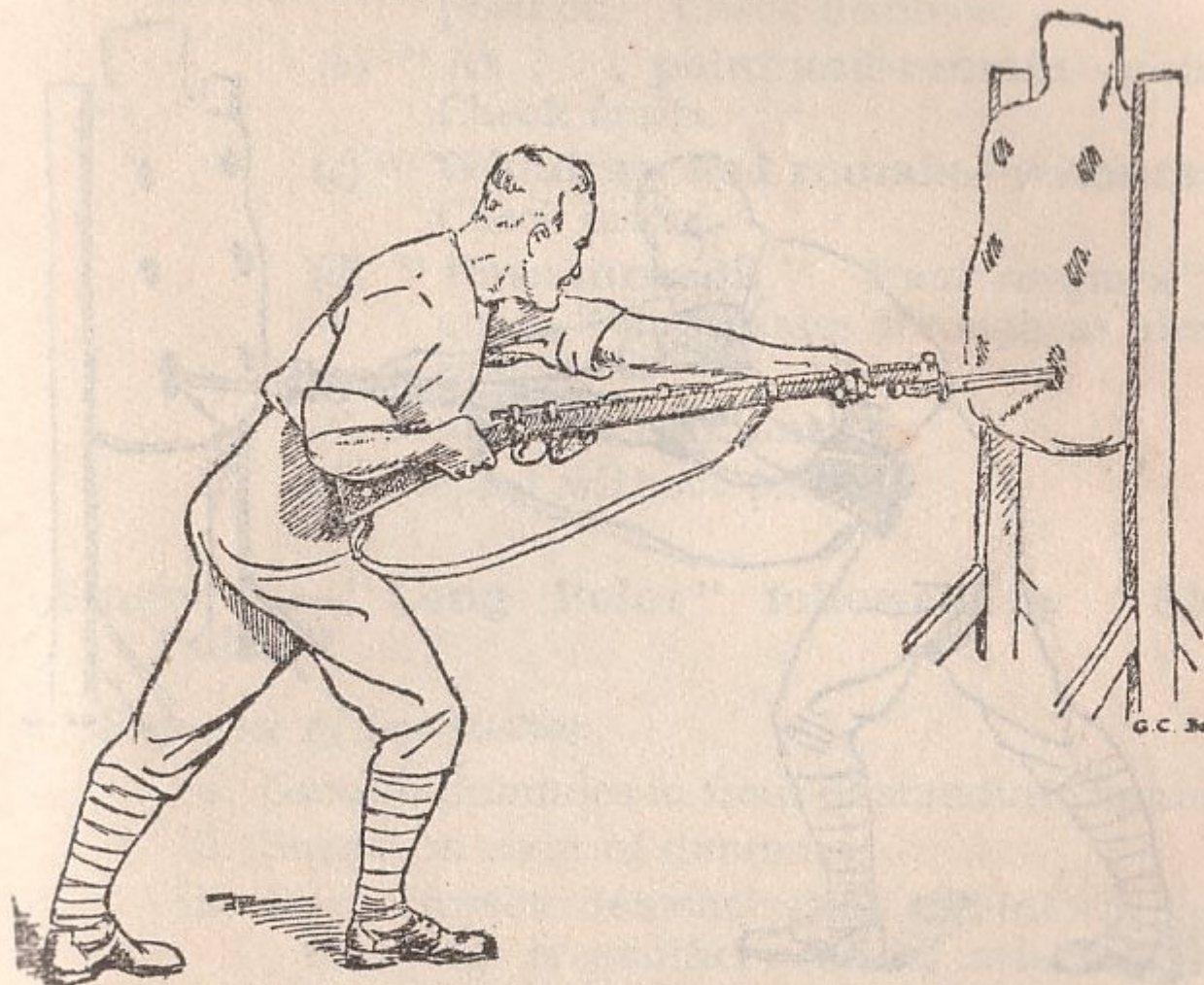
Make a vigorous thrust of the left arm, advancing the rear foot. Direction will be obtained by means of the left hand. (Plate 37.)

If a strong withdrawal from the "short point" is necessary, the right hand *may* be slipped forward to a position near the backsight. (Plate 38.)

"Withdraw" in the same line as that in which the "point" was delivered. Come to the "on-guard," and pass through.

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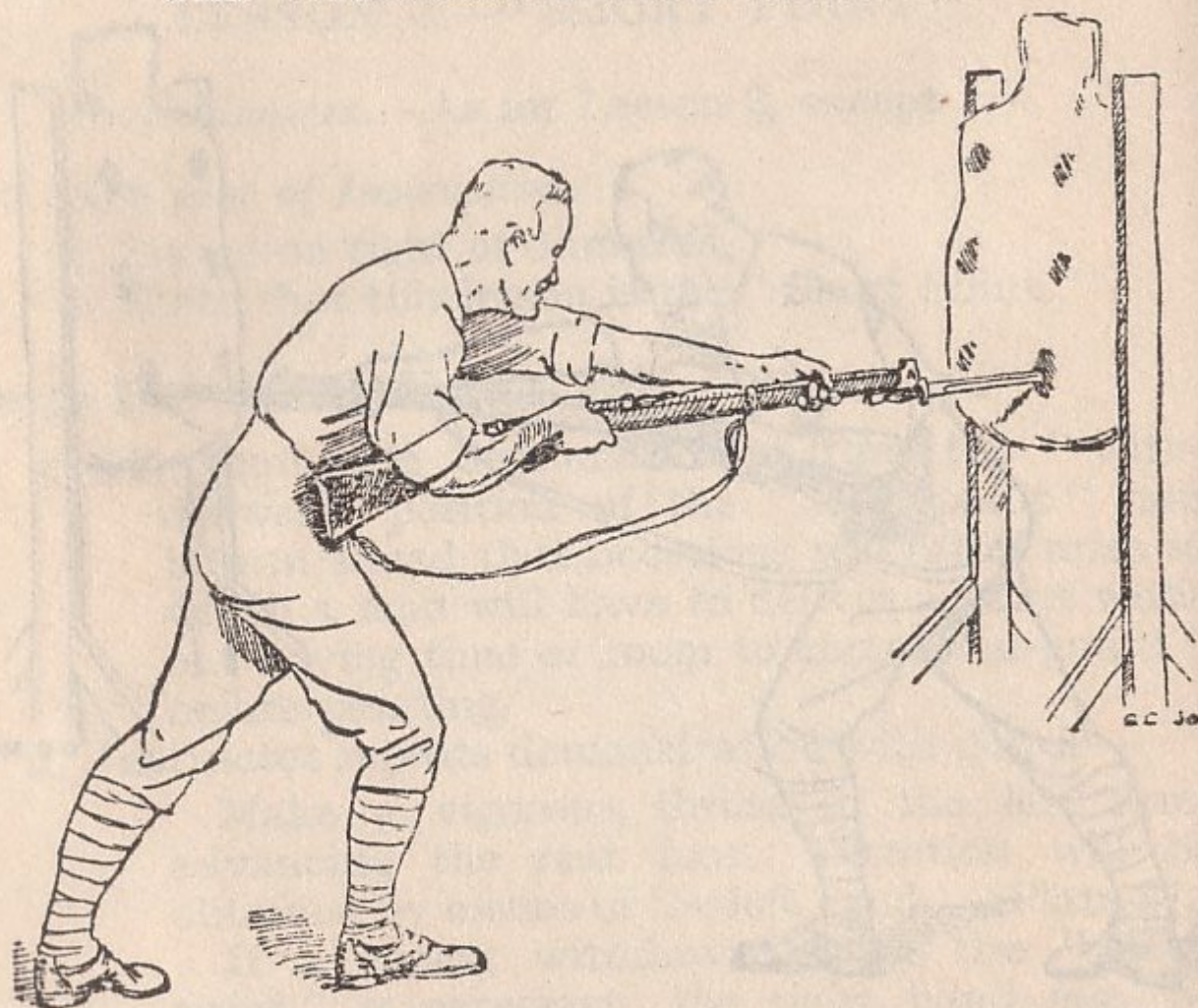
PLATE 37
THE SHORT POINT



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PLATE 38

THE WITHDRAWAL FROM SHORT POINT



iii. Squad returns to original position and practises.
Instructor orders—

- (a) **“Front rank—short point position—ready.”** Rank place themselves in front of dummies in “withdraw” position. Check distance.
- (b) **“At . . . point and remain—point.”** Check faults.
- (c) **“Withdraw and remain—withdraw.”** Check faults.
- (d) **“Pass through.”** Rank resumes “on-guard,” and passes through as already taught.
- (e) Repeat for rear rank.
- (f) Repeat without pauses.

Stage II.—“Long Point” followed by “Short Point.”

Sequence of Instruction.

- i. Ground dummies in front of standing dummies.
- ii. Squad on right of dummies.
- iii. Give complete demonstration and inform squad that this is another way of attacking two opponents in quick succession.
- iv. Repeat demonstration with detail :—
“Long point” directed at the ground dummy, “withdraw” and raise the bayonet, threatening second opponent. Deliver second point and pass through.

v. Squad returns to original positions and practises. Instructor orders—

(a) **“Front rank—on-guard—ready.”**
Rank in front of dummies. Check distance.

(b) **“At centre of ground dummy—point, withdraw and remain—point.”** Check faults.

(c) **“At . . . point.”** Deliver “short point” and pass through.

vi. Repeat for rear rank.

vii. Repeat without pauses.

viii. Demonstrate “long and short point at the walk.”

ix. Squad practises by word of command. No pauses.

x. Demonstrate “long and short point at the double.”

xi. Squad practises by word of command. No pauses.

xii. Squad practises with the training stick. Instructor, assisted by a man, having demonstrated use of stick for “long point” followed by “short point.”

LESSON 4.—“THE JAB”

1. *Preliminaries.*—As for Lesson 2, except (v).

2. *Sequence of Instruction.*

i. Squad on right side of dummies.

ii. State that lesson is “The Jab.”

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PLATE 39

THE JAB POSITION



Stage I

- i. Give complete demonstration and inform squad that there may be occasions in close combat when, owing to an opponent being too close to allow a "long" or "short point" being made, it will be necessary to kill him by an upward point which is termed a "**Jab.**"

- ii. Repeat demonstration with detail—

With the right hand grasp the rifle above the *backsight*, then, if necessary, slide the left hand up to the *piling swivel* and bring the rifle to an almost upright position close to the body, at the same time bending the knees. Jab the bayonet upwards under the opponent's chin. In jabbing, the point of the bayonet should be driven home chiefly by an upward jerk of the legs and body with slight movement of the hands and arms. (Plate 39.)

- iii. Squad returns to original position and practises.

Instructor orders:—

- (a) "**Front rank—jab position—ready.**"

Rank assume position in front of dummies. Checks distance.

- (b) "**At the throat—jab.**" Checks faults.

Repeat several times "**Pass through.**" Rank resumes "on-guard" and passes through.

Stage II.—"Long Point," "Short Point" and "Jab."

Sequence of Instruction.

- i. Ground dummies in front of standing dummies.
- ii. Squad on right of dummies.

iii. Give complete demonstration and inform squad that a man may want to use three points in quick succession and that this is a possible combination.

iv. Repeat demonstration with detail—

Make a "long point," followed by a "short point." From the "withdraw" lower the butt of the rifle, "jab" and pass through.

v. Squad returns to original position and practises. Instructor orders—

(a) **"Front rank—on-guard—ready."**

Rank "on guard" about six feet from ground dummies. Check distance.

(b) **"Long Point at ground dummy—Short Point at . . . standing dummy—Withdraw and Remain—Point"—"Jab position"—"At the . . . Jab."**

Checks faults.

(c) **"Pass through."**

vi. Repeat for rear rank.

vii. Repeat without pauses.

viii. Demonstrate "long point, short point, and jab at the walk."

ix. Squad practises by word of command. No pauses.

x. Demonstrate "long point, short point, and jab at the double."

xi. Squad practises by word of command. No pauses.

PLATE 40
THE BUTT STROKE



- xii. Squad practises with the training stick, instructor, assisted by a man, having demonstrated use of stick for "long point," "short point," and "jab."

LESSON 5.—FURTHER METHODS OF DIRECT ATTACK

1. Preliminaries—

- i. *Stores required.*—Rifles, bayonets, training sticks.
- ii. **"Fall in." "For bayonet training—Move."** Instructor ensures that scabbards are tied on.

2. Sequence of Instruction.

- i. State that although a "point" may have missed or been parried, or a bayonet broken, a man can keep up the offensive by other means. This lesson deals with those means—"Butt Strokes" (Plate 40)—"Slash" and "Kick."
- ii. Squad on right of instructor. Instructor has training stick and calls out one of squad with rifle and bayonet to assist him in demonstrating as follows:—
- iii. Instructor "on-guard"—man "on-guard" ordered to make "advancing long point" at instructor's right breast. Instructor parries off to the right, and points out that man cannot now use his bayonet, but can hit his opponent's chin with the butt.
- iv. Instructor, using man's rifle and bayonet, demonstrates with detail "butt stroke with

toe of the butt." Advance the rear foot and swing the rifle round horizontally, hitting opponent's chin with the toe.

- v. Man again "points," is "parried" and makes "butt stroke." Instructor steps back, causing "butt stroke" to miss.
- vi. Instructor points out that, if the rifle is kept horizontal and the man steps in with the rear foot, at same time swinging the rifle round, he will either hit his opponent's chin with the heel of the butt or "slash" his neck or face with the rifle or bayonet.
- vii. Instructor places the pad to represent his chin. Man, having missed with the toe, swings the heel of the butt round. The instructor will lower the stick so as to ensure that the pad is not hit by the "slash." He will tell the man that the stroke hit his opponent and knocked him down. Asks man where he expects his opponent will be now, and places ring for man to make a "long point," *i.e.*, "kill."
- viii. Squad practises in three stages. In each stage instructor first demonstrates how men practise in pairs as "Master and Pupil." Instructor, using training stick, acts as "Master," and one man with rifle and bayonet is "Pupil."

Stage I.—"1st Butt Stroke" (with the toe).

- i. State that whenever pad is put inside the guard it represents opponent's chin, and should be hit with the "butt stroke."

- ii. Instructor, placing pad inside man's guard, orders him to make the "butt stroke" with the toe, and "kill."
- iii. "Butt stroke" and "kill" repeated slowly, instructor explaining use of the training stick—
 - (a) Hold the stick with pad on ground.
 - (b) Place the pad inside opponent's guard.
 - (c) When the pad has been hit, place the ring on right side where the man would have fallen.
 - (d) After making point, cross over.
 - (e) Check faults.
- iv. Squad back to their places and practises "Master and Pupil." Instructor supervises each man in turn, using the training stick.

Stage II.—"2nd Butt Stroke" (with the heel).

- i. Squad on right side.
- ii. The practice represents hitting opponent's chin with the heel of the butt.
- iii. Man ordered out to do this "butt stroke" and "kill."
- iv. "Butt stroke" and "kill" repeated slowly, instructor explaining use of the training stick:—
 - (a) Stick held with pad on ground.
 - (b) Pad inside opponent's guard.
 - (c) When he makes "1st butt stroke" make him miss by withdrawing pad a few inches. Man using stick must step back to ensure he is well clear of the rifle.

(d) When pad is hit by "2nd butt stroke" place ring on left side where the man would have fallen.

(e) Cross over.

(f) Check faults.

v. Squad back to their places and practise as in **Stage I.**

Stage III.—The "Slash."

i. Squad on the right.

ii. Practice represents hitting opponent with the "Slash," which is really part of the "2nd butt stroke."

iii. Man ordered out to do "slash" and "kill."

iv. "Butt stroke" and "kill" repeated slowly, instructor explaining use of the training stick—

(a) Stick held with pad on ground.

(b) Pad inside opponent's guard.

(c) When he makes "2nd butt stroke" make him miss pad by withdrawing clear of the rifle, and when "slash" is made do not allow the pad or stick to be hit.

(d) Place ring on left side.

(e) Cross over.

(f) Check faults.

v. Squad back to their places and practises as in **Stage I.**

vi. Squad on right of instructor, who has training stick and calls out one of squad with rifle and bayonet, and demonstrates the "kick."

vii. Instructor "on-guard" orders man to make an "advancing long point" at the left breast. Parries off to the left and points out that neither the bayonet nor the butt can now be used. A kick at the fork will, therefore, be made. Instructor explains that, whenever the pad is placed inside the guard about the height of the fork, it will be kicked with the rear foot.

viii. Orders man to do the "kick" and "kill."

ix. Repeats slowly, explaining use of the training stick—

(a) Stick held with pad on ground.

(b) Pad inside opponent's guard about height of the fork.

(c) When pad has been kicked, place the ring where man would have fallen.

(d) Cross over.

(e) Check faults.

x. Squad back to their places and practise as in **Stage I.**

LESSON 6.—COUNTER-ATTACK

1. Preliminaries—

i. *Stores required.*—Rifles, bayonets, training sticks.

ii. Squad "**Fall in**"—"For bayonet training—**move.**" Ensure scabbards are tied on.

2. Sequence of Instruction.

i. Squad on right of instructor.

ii. State that this lesson is how to make a "parry" and "kill". When an opponent has been the

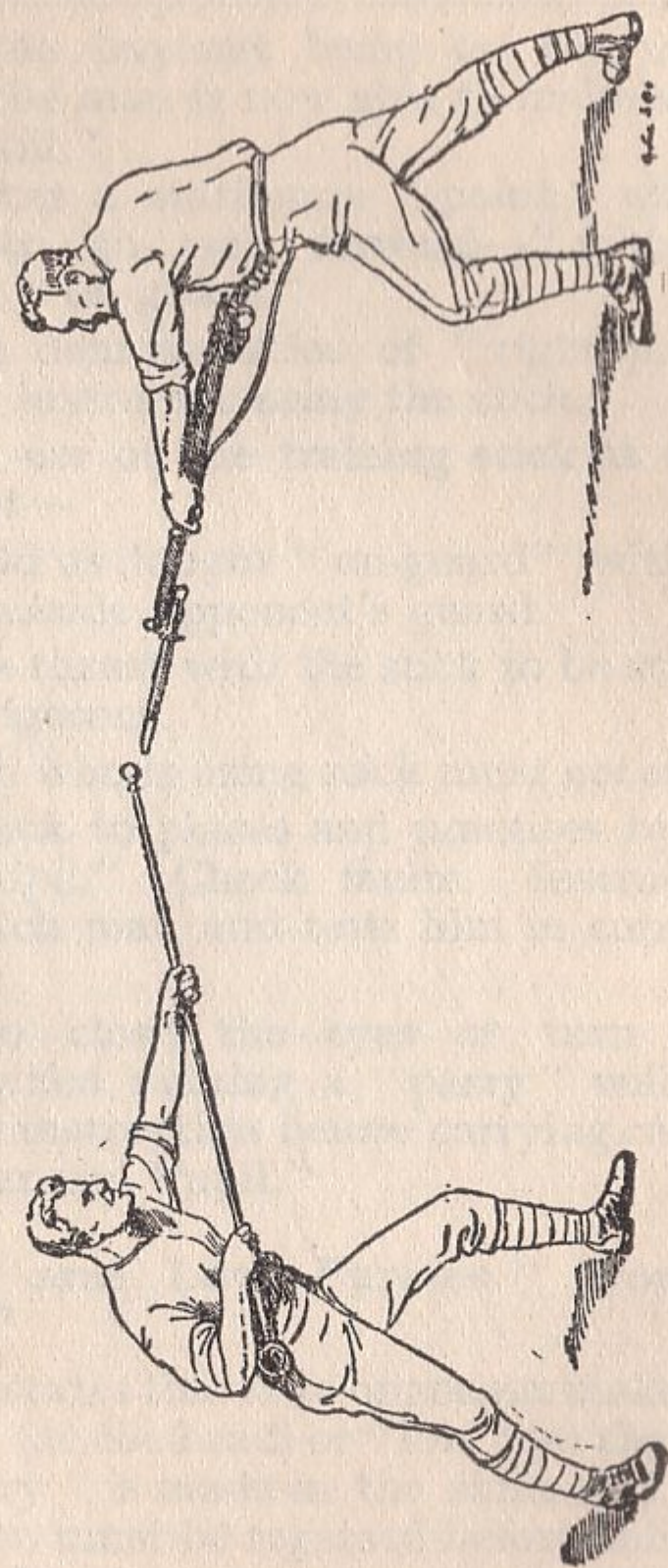
quicker in making a "point," a "parry" is the means of making an opening for a counter offensive, either by a "point" or a "butt stroke" which will follow a "parry" immediately. (Plate 41.)

Stage I.—"Right Parry and Kill."

- i. Instructor with stick outside man's guard; man with rifle and bayonet; both in "on-guard" position.
- ii. Warns man he is going to attack him on *right* side, breast high, the stick representing an opponent's rifle and bayonet.
- iii. Instructor makes a "point" at man's right breast by sending stick in straight and vigorously with the right arm, *not* stepping in.
- iv. Man parries off to the right. A recruit will usually make a wide sweep of his "parry," and instructor will emphasize that this allows his opponent to get inside man's guard with the advantage that the bayonet is well off the opponent's body.
- v. Explains the way to make "right parry" is to keep the eyes on the opponent's weapon—from the "on-guard" vigorously straighten the left arm without bending the wrist or twisting the rifle in the hand, and *punch* the rifle forward far enough to the right to beat off the opponent's weapon, but try to keep the bayonet directed on the opponent's body.
- vi. Instructor again "points" with stick. He will insist on a good "parry" and then emphasize

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PLATE 41
USE OF THE TRAINING STICK—POSITION FOR TEACHING PARRIES



- that, the bayonet being on the instructor's body, the man is now able to make a "point" and "kill."
- vii. Man makes a stationary "point," allowing his body to go well forward—"withdraws"—returns "on-guard."
- viii. Complete demonstration of "right parry" and "kill," instructor using the stick.
- ix. Explains use of the training stick as a rifle and bayonet—
- (a) Hold as taught "on-guard" with pad just outside opponent's guard.
 - (b) The thrust with the stick to be straight and vigorous.
 - (c) Man who is using stick must *not* step in.
- x. Squad back to places and practises by "Master and Pupil." Check faults. Instructor exercises each man and tests him in correct use of stick.
- xi. Men who close the eyes or turn the head away when making a "parry" will be given further instruction before carrying out practice "Master and Pupil."

"Right High and Low Parries" from "On-Guard."

- i. Instructor states that if an opponent makes a "high point" (at the head) or "low" (at the right leg), a "parry" is made in the same way, but that direction must be regained before delivering the "point."

- ii. Assisted by a man and making use of suitable ground, instructor with stick demonstrates "high and low right parries and kill."
- iii. Squad practises, working in pairs as "Master and Pupil." Instructor supervises.

Stage II.—"Left Parry and Kill."

- i. Instructor with stick outside man's guard; man with rifle and bayonet; both in "on-guard" position.
- ii. Warns man he is going to make a "point" at his left side.
- iii. Instructor makes the "point."
- iv. Man parries off to the left.
- v. Instructor explains "parry" must be made fairly wide to beat off opponent's "point," therefore, opponent is always inside man's guard. Man cannot use his bayonet, therefore the butt must be used first, then "kill" with bayonet.
- vi. Man now makes "butt stroke." Pad is not used.
- vii. Instructor places ring for the "kill."
- viii. Complete demonstration of "left parry and kill."
- ix. Explains use of the training stick—
 - (a) Held and "point" made as in "right parry."
 - (b) Pad will *not* be placed in position for "butt stroke."
 - (c) Ring placed in correct place for "kill."
- x. Squad back to places and practises by "Master and Pupil." Check faults. Instructor exercises each man and tests him in correct use of stick.

"Left High and Low Parries" from "On-Guard."

- i. Instructor states that these are made against "high" or "low left points."
- ii. Assisted by a man, instructor making use of suitable ground demonstrates "high and low left parries and kill."
- iii. Squad practises in pairs as "Master and Pupil." Instructor supervises.

Stage III.—"Short Point Parries."

- i. Instructor states that parries made against a "short point" are the same as those from "on-guard" position.
- ii. Assisted by a man, instructor using stick demonstrates "right and left parries and kill." He explains possibility of "high" and "low parries" in this position.
- iii. Squad practises in pairs as "Master and Pupil." Instructor acts as in **Stage I.**

Stage IV.—"Jab Parries."

- i. States it may be necessary to make a parry from the "jab" position.
- ii. Instructor using stick in "on-guard" position: man in "jab" position.
- iii. Warns man he is going to make a "point" at his face.
- iv. Makes the "point."
- v. Man will make some kind of "parry."

- vi. Explains that correct "parry" is made by pushing the rifle forward and outwards to full extent of the arms.
- vii. Instructor mentions remote possibility of having to make a high or low "parry" in this position.
- viii. Explains that some form of offensive action must follow this "parry" immediately.
- ix. Squad practises in pairs as "Master and Pupil." Instructor acts as in **Stage III**.

43. Section assault practices

1. **1st Stage—(Preliminary).—The Controlled Charge and Counter-Charge.** In these exercises bayonets will have scabbards on and, with the exception of the first, fire should precede movement.

i. **Exercise 1.—The Controlled Charge :—**

- (a) With squad in single rank extended to two paces the instructor explains exercise and object (Sec. 41, 8).
- (b) By pre-arranged signal, the squad advances at a steady double at the "high port" towards the instructor who places himself about eighty yards away to the front.
- (c) When about twenty yards from the instructor, the squad assumes the "on-guard" position and "charges."
- (d) Instructor halts the squad and gives a fire order.
- (e) *Lessons—*
Control while advancing steadily at the "high port."

Dash and determination during the last twenty yards.

Resumption of control and opening of fire after completion of charge.

ii. **Exercise 2.—The Counter-Charge :—**

Two sections, eighty to one hundred yards apart, extended to four paces interval, advance and charge through one another, passing right arm to right arm.

Lessons.—As in Exercise 1.

iii. **Exercise 3.—The Controlled Charge and Counter-Charge combined :—**

(a) *Attackers* (one section).

Advance at "high port" from about one hundred yards from the position to be assaulted. After advancing about fifty yards break into a steady double and commence the assault. When within twenty yards of the enemy, "charge."

(b) *Defenders* (one section).

Lying in the open or in a trench. Open fire and continue until the enemy is about fifty yards distant. Advance to the front, assume the "on-guard" position and "charge" the enemy when the latter are about twenty yards distant.

(c) *Lessons—*

A well-timed counter-charge against an attacking enemy shaken by fire may meet with considerable success.

Good fire orders at beginning.

Timing of the counter-charge, *i.e.* judging the right time for the defenders to leave cover.

Control during movement

2. When carrying out these exercises determination and control in the man should be developed. Each man as he advances should select an opponent to kill and act with determination to do so. He must keep touch with the men on his right and left.

3. **2nd Stage (Advanced).—The Assault Practice** will approximate as nearly as possible to the conditions of actual fighting. The men should begin the assault or close combat from a trench or screen, or from behind a bank or wall, as well as from the open.

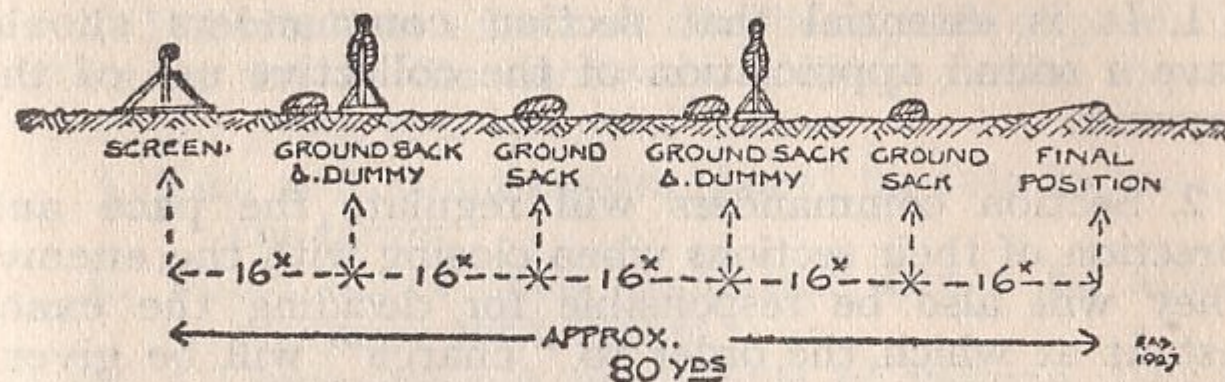
4. During the elementary stages it is advisable to use a well-defined enemy position as the objective, with firm ground over which the attacking sections may advance. During the later stages of training, however, sections will be practised to assault over broken ground.

5. The assault practice is not a tactical exercise, but in carrying out the practice the following points will be observed :—

- i. Fire should invariably precede and follow movement.
- ii. All members of the attacking party will leave the trench, or rise from cover, simultaneously.
- iii. The first stage of the advance will be at a steady double—not faster than the pace of the slowest man.

Such an advance has a decided moral effect on the enemy, ensures a degree of cohesion on contact, and allows the assaulting party to reach its objective without undue exhaustion. If the final rush is allowed to develop without control, the moral effect is lost, and the defenders may be given time to dispose of their opponents in detail.

FIG. 18.—BAYONET ASSAULT COURSE



- iv. The actual "charge" will be made over a distance not greater than twenty yards. Within the last ten yards and before closing with the enemy, the rifle will be brought to the "on-guard." Cohesion will, as far as possible, be maintained until actual contact with the enemy occurs.
- v. As soon as the enemy position has been captured every precaution will be taken against a counter-attack. The pursuit by fire and repulse of a counter-attack will invariably be practised, with or without ammunition according to the safety area of each assault course. In this way these actions may become second nature.

6. Competitions.—Bayonet training lends itself to competitions, and when opportunity occurs these should be arranged for both individuals and sections.

In framing them the use of the bullet should not be lost sight of, and it may sometimes be possible to employ the portable equipment, *i.e.*, dummies, canvas screens, etc., in conjunction with a 30-yards range.

44. Leadership in assault

1. It is essential that section commanders should have a sound appreciation of the collective use of the bayonet.

2. Section commanders will regulate the pace and direction of their sections when closing with the enemy. They will also be responsible for deciding the exact instant at which the order to "charge" will be given, and for regaining control of their sections immediately, ready for a further advance or for the repulse of a counter-attack.

CHAPTER V

VISUAL TRAINING AND APPLICATION OF FIRE

45. General

1. In order that a fire unit may be capable of producing effective fire in the necessary volume at the required time and place, it is essential that—

- i. Fire unit commanders should be able to indicate the target.
- ii. Those under their command should be able to recognize that target.
- iii. All ranks should be capable of judging distance, and, in the case of range-takers of machine-gun sections, should be able to take ranges accurately.
- iv. Good fire discipline should be combined with intelligent fire control.

2. To achieve i, ii and iii of the above, visual training is necessary, *i.e.*, the teaching of the individual how and what to observe. Fire discipline training should be combined with all instruction in the use of weapons.

3. In battle, judging distance, indication and recognition are all interdependent. In the earlier stages of training each will be taught separately, except that by the time the **4th Stage** in visual training is reached a man should be able to judge distance with reasonable accuracy.

46. *Visual training and recognition*

1. Exercises framed to stimulate the soldier's powers of observation should commence early in his training and continue throughout his service. They should include the study of ground, impressions of size, recognition of targets and ground features, and observation of fire. Training will begin with questions framed to develop the recruit's powers of describing what he sees; ordinary objects will be counted and figures of different colours will be placed sometimes in the open and sometimes under partial cover in front of various backgrounds. Men will be employed to show how movement catches the eye and discloses a firer's position. Blank ammunition will be used to give practice in locating an enemy by sound.

2. As progress is made these exercises will be carried out under stricter conditions, the observer lying down or watching from behind cover. Special attention will be given to recognizing features of ground such as fire positions, dead ground, etc. The use of field-glasses will be practised; distant objects will be examined and described both with and without the aid of glasses. Leaders will be constantly practised in searching ground with glasses.

3. In connection with visual training, men will be familiarized with all terms applied to features of ground, colours, shapes, and military objects generally, so that their powers of description and recognition may be improved. A specimen military vocabulary is appended,

which should be increased by teaching the local equivalent for, or additional terms appropriate to, the station in which the unit is serving, for example, "wadi," "nullah," "kotal."

i. *Features, Artificial—*

Track.	Telegraph Pole.	Church Steeple.
Footpath.	Sign Post.	Chimney.
Ride.	Pylon.	Chimney Stack.
Roads:—	Viaduct.	Factory.
tarred,	Culvert.	Crane.
metalled,	Cutting.	Gasometer.
unmetalled,	Embankment.	Gable-end.
fenced and	Canal.	Thatch.
unfenced.	Lock.	Tiled.
Cross Roads.	Ferry.	Slate.
Sunken Road.	Ford.	Quarry.
Post and Rail	Moat.	Ricks.
Wire	Windmill.	Stacks.
Iron	Railway Signals.	Stooks.
Hurdles.	Church Tower.	

ii. *Colours—*

White.	Yellow.	Green.	Brown.
Black.	Blue.	Red.	

iii. *Features, Natural—*

Fir	} Trees.	Copse.	Grass.
Poplar		Bush.	Stubble.
Bushy-topped		Gorse.	River.
Hedgerow.		Corn Field.	Stream.
Wood.		Plough.	Pond.
Outcrop (rock).		Root Field.	Lake.
Sand-dune.			

iv. *Topographical*—

Ridge.	Knoll.	Dead Ground.
Valley.	Saddle.	Cliff.
Fold.	Slopes, Forward.	Gorge.
Defile.	„ Reverse.	Ravine.
Crest-line.	„ Concave.	Clearing.
Horizon.	„ Convex.	Salient.
Spur.		

v. *Field Engineering*—

Trench.	Barricade.	Right Angle.
Parapet.	Dug-out.	Square.
Parados.	Defended post.	Triangle.
Fire Step.	„ locality.	Circular.
Revetment.	Observation Post.	Vertical.
Traverse.	Blockhouse.	Horizontal.
Breastwork.		

vi. *Fire, types of*—

Oblique.	Enfilade.	Overhead.	Direct.	Indirect.
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vii. *Formations*—

Column of Route.	Platoon Column.	Fours.
Mass.	Company „	Arrow Head.
Line.	Artillery formation.	File.
Extended Line.	Diamond.	Single File.
Section Column.	Square.	

viii. *Aircraft*—

National Markings.	Monoplane.	Wing.
Airship.	Engine.	Tail.
Kite Balloon.	Propeller.	Nose.
Biplane.	Strut.	Hangar.

ix. *Mechanical Vehicles*—

Tank	} A.F.Vs.	Dragon.
Armoured Car		Lorry.
Turret.		Carriers (Armoured or Unarmoured).
Tracks.		Tractors.

4. In the elementary stages of visual training, and while the military vocabulary is being taught, the objects to be seen or recognized may be indicated by descriptions, or by the instructor aiming a rifle at the object and those under instruction looking along the sights. The instructor then explains to the men what they have been looking at, using the military vocabulary.

5. Instruction in visual training will be progressive and divided into the following stages. All stages can be taught on landscape targets when ground or weather do not permit of work out doors.

1st Stage.—In or near Barracks.

Stores required.—Either use objects seen from the barrack square, or landscape targets. One rifle and aiming rest.

The recruit should be taught to recognize his immediate surroundings, *i.e.*, his eyes must be trained to convey what they see to the brain and to discern detail. For example, does he know all badges of rank which he sees daily, and can he describe what they comprise? Does he know the names of familiar objects round him, such as “A roof with a gable end,” “A church with a ‘tower’ as opposed to one with a ‘steeple,’ ” and so on?

2nd Stage.—Open Country.

The object at this stage is to train men to locate service targets up to 800 yards.

Exercises will be carried out at first with silhouette targets and later by employing fatigue men instead of targets, the distance being increased as progress is made.

These exercises require careful preparation, and arrangements should be made only a short time beforehand as a change of light may prevent the desired lessons being taught.

i. *With targets*—

- (a) *Stores required*.—Silhouette targets Nos. 2, 3, 4, and 5.
- (b) The targets, which should be of different colours, will be arranged against various backgrounds and present a varying degree of difficulty in location. The areas in which the targets are placed should have well-defined limits which are to be clearly described to the squad.
- (c) After a specified time the squad will be called upon to describe the characteristics and positions of the targets they have observed. The instructor will then describe their positions and bring out reasons for difference in visibility, etc.

ii. *With fatiguemen*—

- (a) *Stores required*.—One flag; fatiguemen with rifles and blank ammunition.
- (b) The exercises will be carried out on similar lines to i. above, fatiguemen being placed in normal firing positions in the open and behind cover. They will be called upon to move, fire, or stand up by flag signals.
- (c) The instructor will bring out lessons similar to i. (c) above, but in addition will emphasize the fact that movement is

quickly detected. At this stage it may be pointed out that the sense of hearing will often assist the eye in locating targets.

3rd Stage.—Examination of Ground.

- i. *Object*.—To enable men to make clear reports, to understand instructions, and to recognize features of military importance.
- ii. *Definite sector or position on landscape*.—Always describe from right to left, only features of military importance being studied in detail.
- iii. *Areas of ground*.—In describing areas a methodical system is essential. Clearly defined boundaries should be selected and a description given of the general shape. The tactical importance of natural and artificial features should be noted and the military vocabulary thereby increased. As progress is made the squad may be given a limited time to examine an area and then turned about for individuals to give a description.
 - (a) If the area to be described is not extensive, first indicate the right boundary by giving a succession of landmarks, starting with the nearest and ending with the farthest; then indicate the left boundary in a similar manner. The ground in between will then be described generally, in a forward direction and from right to left.
 - (b) Large areas should be divided into

sectors, each being described as above ; or divided into foreground, middle distance, and background, each being described in that order. A combination of these two methods may sometimes be necessary.

- iv. *Searching an area.*—When searching an area for the purpose of locating a target, the ground should be examined along imaginary lines running from right to left or from foreground to background, the eye travelling along one line and returning by the next so that no part of the area is omitted. The use of field-glasses by section commanders or of telescopes by observers of machine-gun platoons for confirming what is first located by the eye requires practice.
- v. *Road work.*—An eye for country may be cultivated by making men observe what they pass on the march. Question them after a given interval.

4th Stage.—Recognition Without Aids.

- i. *Stores required.*—One aiming rest for each man.
- ii. *Object.*—To train a man to recognize targets described and to understand the exact point at which his commander wishes him to aim.
- iii. In all lessons in recognition, accuracy of aim will be insisted on, however indistinct the point indicated may appear. In this stage the instructor indicates various targets without aids (Direct Method) by means of a normal

fire order, omitting only the number of rounds and the order to fire. The men recognize and lay aims. Plenty of practice is necessary.

5th Stage.—Recognition with Aids.

- i. *Stores required.*—One aiming rest for each man.
- ii. The instructor explains to the men the various aids used in indicating targets in fire orders, and describes difficult targets using aids as in the 4th Stage. The men recognize, and lay aims.
- iii. After the man has been thoroughly trained in the above five stages of recognition, he will be given practice in receiving complete fire orders.

47. Indication.

1. Loss of fire effect is principally due to bad indication. The training of fire unit commanders in this subject is, therefore, of vital importance. To ensure uniformity only one system of indication will be employed throughout the army.

2. Points of aim will be described whenever possible by the direct method, *i.e.* without aids. Aids known respectively as the "Vertical Clock Ray" and "Degree" methods, or a combination of both, may be used in connection with the "reference point" aid when necessary.

3. The training of the fire unit commander will be carried out in the undermentioned stages. In each

case the method of instruction will be the same. A rifle is laid on the point, or points, to be indicated; the leader under instruction then describes the target by the methods described below; the remainder of the squad recognize it. The ground over which this subject is practised should be as varied as possible. When it is not possible to work over natural country, landscape targets may be used, the instructor using pins on the miniature landscape to fix the point of aim which is to be indicated to the squad.

1st Stage.—Without Aids.

- i. *Stores required.*—One aiming rest for each leader in the squad.
- ii. The points of aim will be described using (a) or (b) as required :—
 - (a) Indication by description of any obvious target.
 - (b) Indication by direction, *e.g.* slightly, quarter, half, or three-quarters right, or left, from either the last target, or general direction in which men are moving or facing, ending up with description of target in each case.

2nd Stage.—With Aids.

- i. *Stores required.*—As in 1st Stage.
- ii. In this stage a reference point, or points, will always be given. For rifle or light automatic sections the ranges to these will also be stated. The reference point, being the basis of the

indication, will invariably be named before the description of the point of aim.

4. *Aids to indication*—

i. *Reference Points*.—Prominent and unmistakable objects of different kinds about twenty degrees apart and within the probable target area should be selected.* They will be described to the section from right to left, and the names by which they are to be known will be made clear. The position of the target in relation to the "reference point" will be indicated as in para. 3, ii, (b), above, or by such terms as "immediately above" (or below).

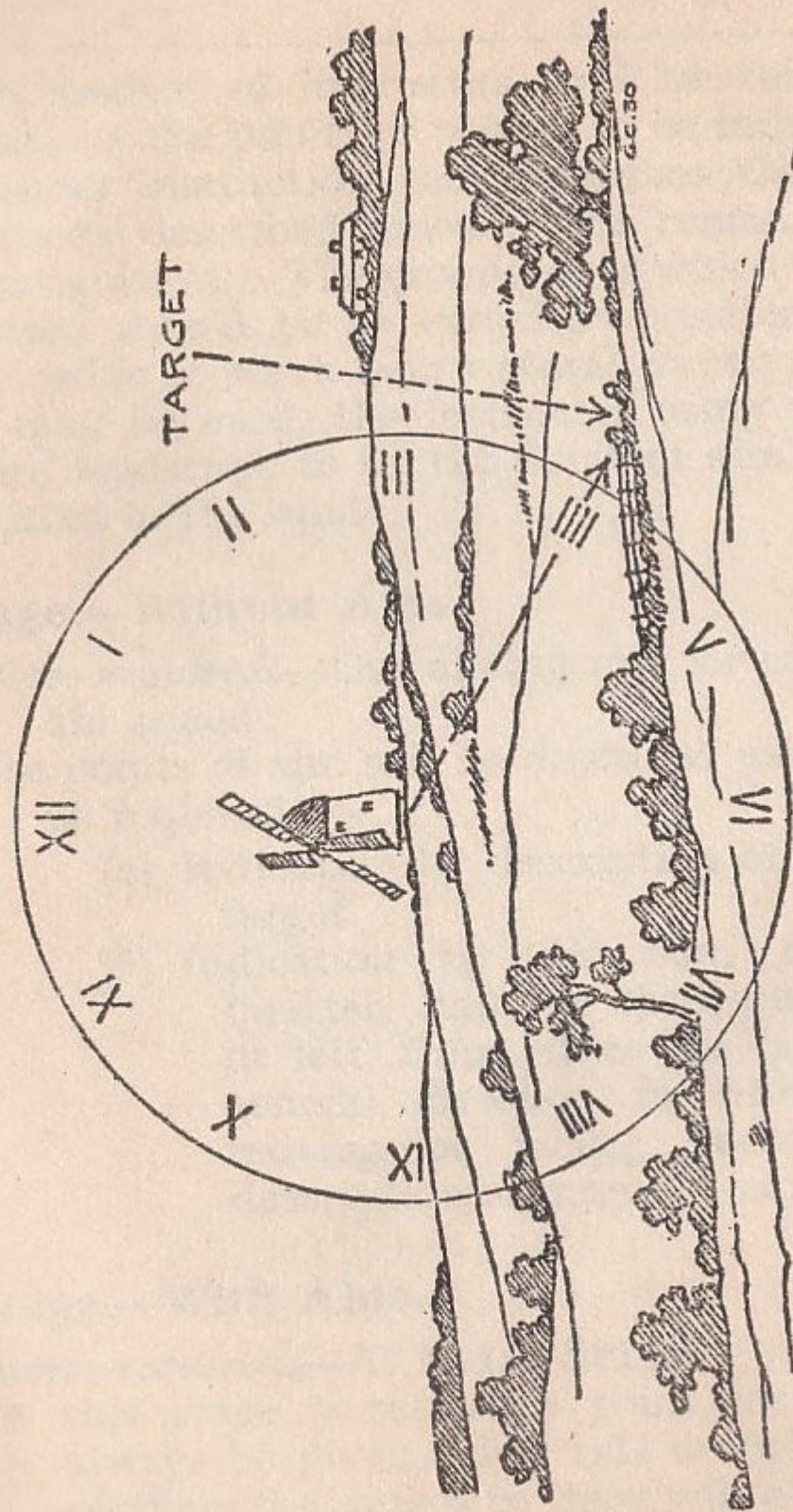
ii. *Vertical Clock Ray* (Plate 42).—Used for giving direction from a reference point, and should only be employed where there is a considerable command of view over the ground. In applying this aid an imaginary clock face should be visualized as being held vertically at arm's length from the eye, its centre aligned on the lowest part of the reference point. The direction of the target above or below, right or left from the reference point, is given together with the clock ray. When teaching the *vertical clock* aid, it will assist men under instruction to let them view the landscape through a clock dial made by cutting a circle out of a piece of cardboard and fixing the twelve clock rays by thread.

* See also Sec. 13, Vol III, 1931.

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PLATE 42

VERTICAL CLOCK RAY



EXAMPLE : WINDMILL - RIGHT - 4 O'CLOCK - TWO BUSHES.

iii. *Degree Measurement.*—Used for showing distance from a reference point, the angular distance being measured by graticuled field-glasses, by the use of the hand or by any convenient appliance, such as the *foresight* or *backsight* of the rifle, or the *foresight* of the Lewis gun.

This aid, when used by itself, gives angular distance of the target from the reference point measured, directly to right or left. In distributed fire it can be used to denote the lateral distribution required to cover the target. It is also employed in collective fire to give the required deflection for wind.

iv. *Combination of Vertical Clock Ray and Degree Measurement.*—This aid shows the angular distance of the target from the reference point in any direction. It should only be employed when the vertical clock ray by itself would not ensure quick recognition. Plate 43 is an example where the use of the clock ray alone might result in the wrong bush being recognized.

v. Example of the use of both the clock ray and degree aids to indicate a target and the amount of distribution required:—Windmill—Right—4 o'clock—2 degrees—Small bush—From bush to a point right—5 degrees (Plate 44).

vi. *Measurement of Degrees.*

(a) All ranks should know what angles are subtended by the various parts of their own hands when held at arm's length

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PLATE 43

VERTICAL CLOCK RAY AND DEGREE MEASUREMENT

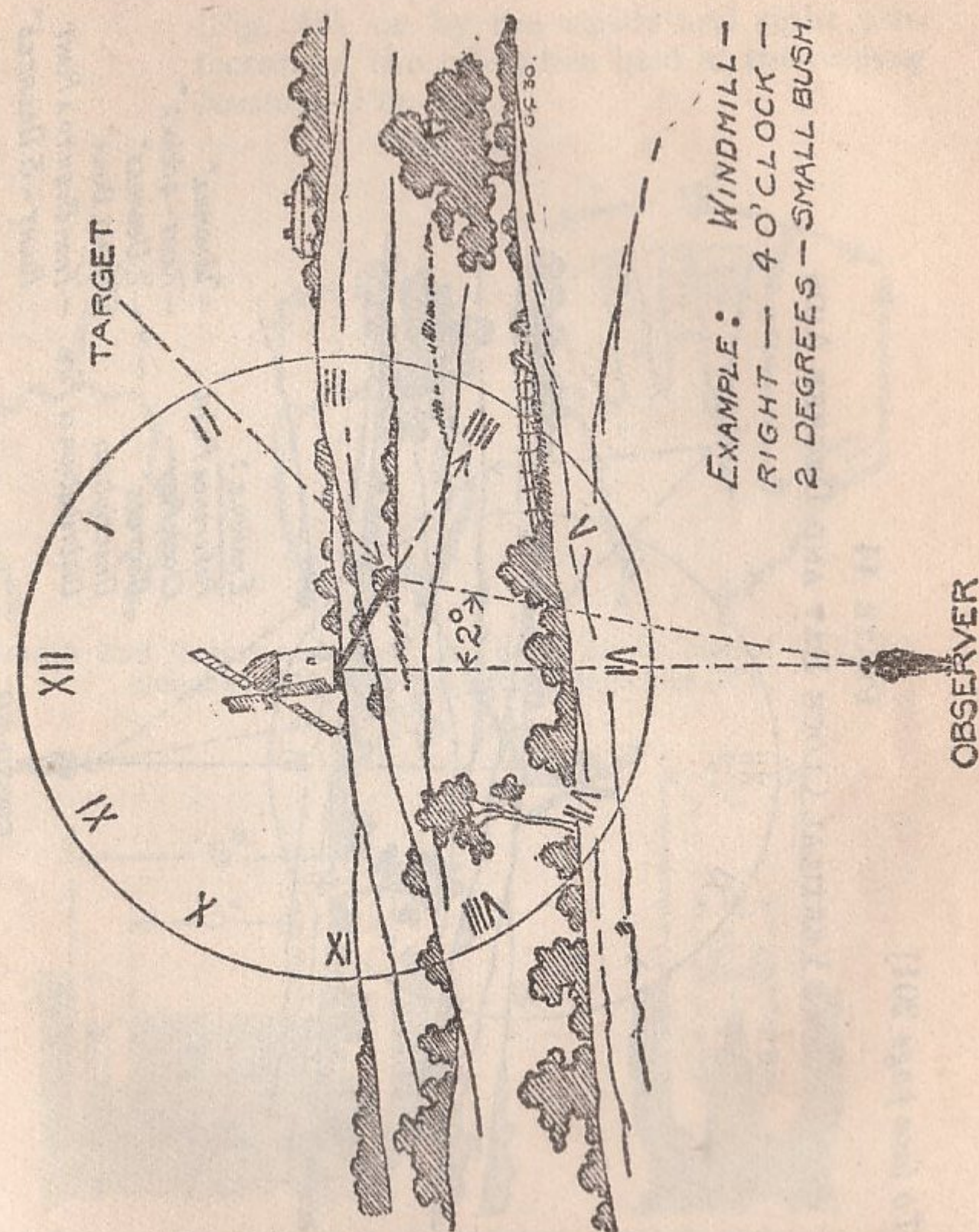
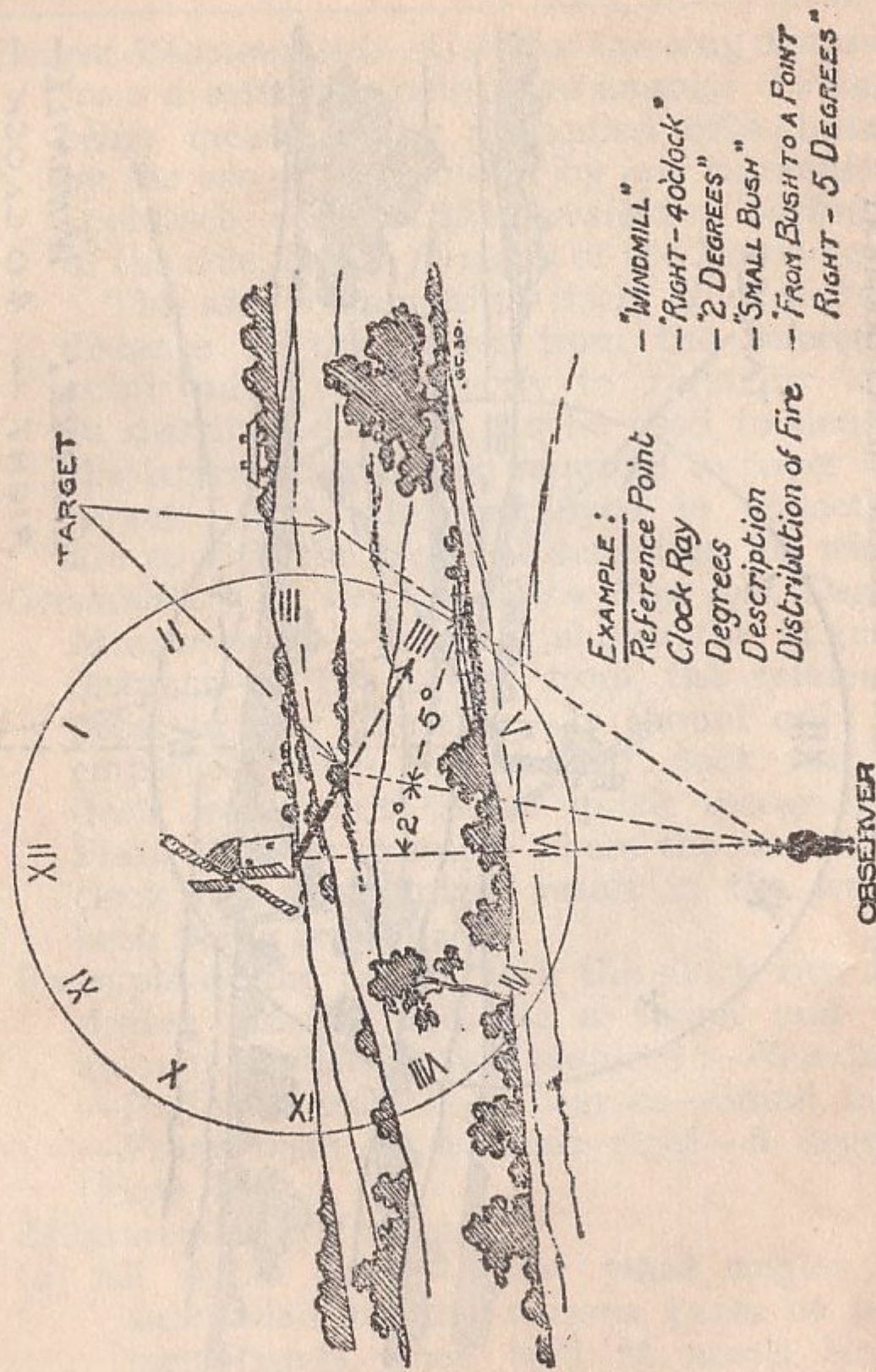
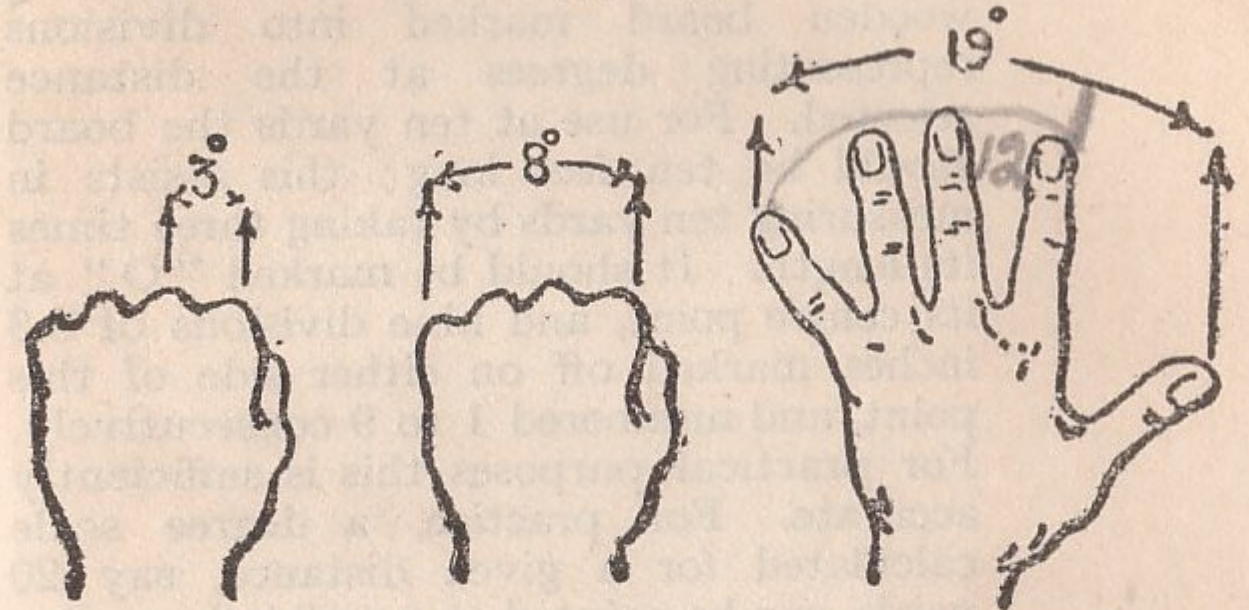


PLATE 44
VERTICAL CLOCK RAY AND DEGREE AIDS



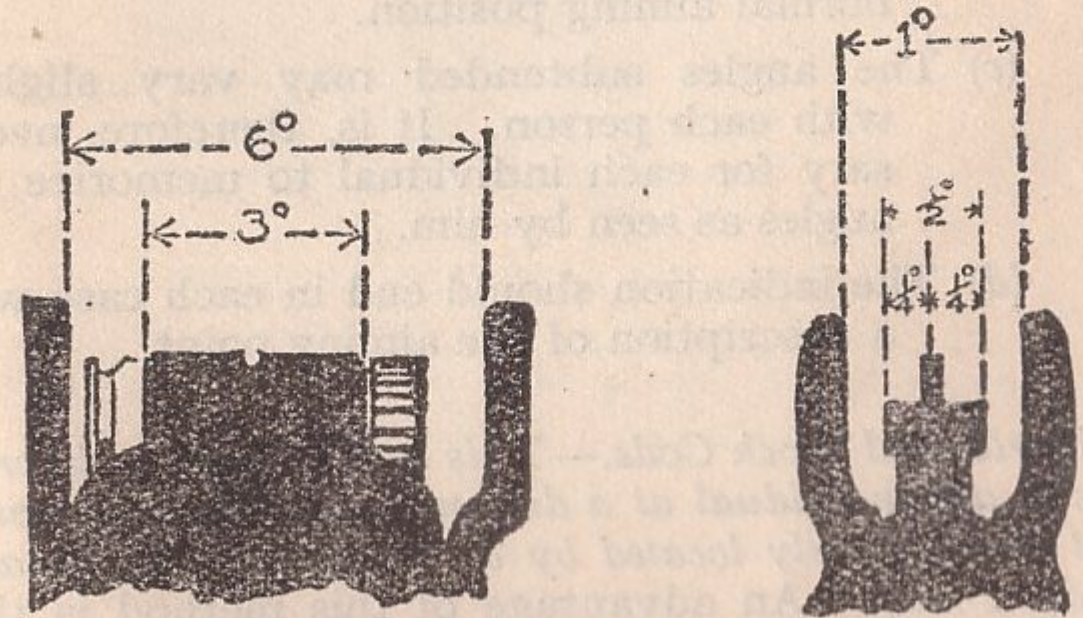
(Fig. 19), or by the sights and sight protectors of the rifle when held in the *aiming position* (Fig. 20).

FIG. 19



Thumb and fingers extended, as shown above (about 19°), fist clenched (8°), first and second knuckles (3°).

FIG. 20

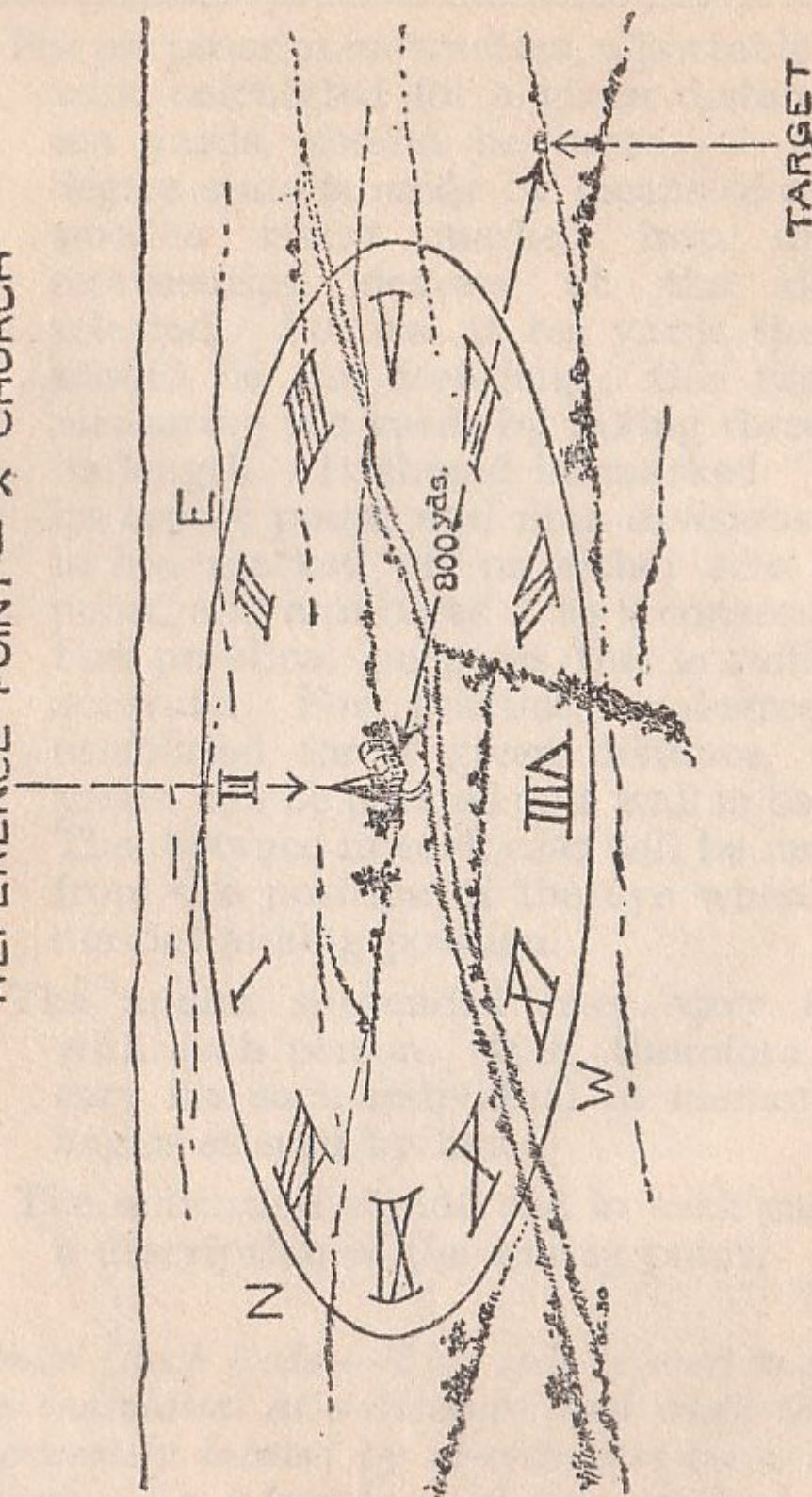


The degrees shown in both above figures are only approximate; each man must test for himself.

- (b) For purposes of instruction, a portable degree scale calculated for a given distance, say ten yards, should be made. A suitable degree scale is made by means of a strong wooden board marked into divisions representing degrees at the distance selected. For use at ten yards the board should be ten feet long; this assists in measuring ten yards by taking three times its length. It should be marked "O" at its centre point, and nine divisions of 6.3 inches marked off on either side of this point, and numbered 1 to 9 consecutively. For practical purposes this is sufficiently accurate. For practice, a degree scale calculated for a given distance, say 20 yards, can be painted on a wall in barracks. The distance in each case will be measured from the position of the eye when in the normal aiming position.
- (c) The angles subtended may vary slightly with each person. It is, therefore, necessary for each individual to memorize the angles as seen by him.
- (d) The indication should end in each case with a description of the aiming point.

5. *Horizontal Clock Code.*—This code is used to describe targets to an individual at a distance, and when the target cannot be accurately located by co-ordinates on a squared or gridded map. An advantage of this method is that

PLATE 45
HORIZONTAL CLOCK
REFERENCE POINT—"X" CHURCH



the receiver of the message need not go to the sender's position.

- i. All officers, warrant officers, and senior N.C.Os. down to platoon serjeants will be instructed in this method, as it enables infantry to indicate the approximate positions of targets to artillery, machine guns, etc.
- ii. In this method the "reference point" is taken to be the centre of a clock lying flat on the ground with 12 o'clock pointing approximately true North.
- iii. The position of the target is indicated by using a clock ray combined with the distance between the reference point and the target, *estimated in yards*.
- iv. For estimating a lateral distance it is necessary to know some measurement which will cover laterally one-tenth of a forward distance, *e.g.* 10 yards at 100 yards, then apply it at longer ranges. With the rifle held in the aiming position the backsight protectors approximately give this measurement, *e.g.* at a range of 500 yards the backsight protectors cover a lateral distance of 50 yards.
- v. *Example* (Plate 45).—An infantry observer has seen a gun firing from behind some rising ground south of "X" Church, and sends the following message:—

"Reference Map . . . Can see enemy gun firing. Ref. point "X" CHURCH, 6 o'clock, 800 yards. Time 1430 hrs."

The sender's position should whenever possible be stated.

- vi. *Reporting observation of artillery fire.*—It is also possible to report a target to the artillery by this means and subsequently get their fire on to it. The target is reported by the horizontal clock code as in sub-para. v. It is advisable that the reference point should have been agreed on previously with the artillery commander concerned, and in any case it should be a point which can be identified on the map. When the battery starts firing, the imaginary clock is moved so that its centre coincides with the target, 12 o'clock again pointing approximately true North.
- vii. The "setting" of the imaginary clock-face is most easily done by the observer taking a bearing on the reference point or target, either by compass or estimation, and then placing 12 o'clock to coincide with true North, *e.g.* bearing is 60° , true—12 o'clock will then be to the left and beyond the reference point, and the observer is looking across the clock-face from 8 o'clock to 2 o'clock.
- viii. As each round falls, its direction from the target is reported with reference to the clock face, and its distance from the target is estimated in yards, *e.g.* 3 o'clock, 200 yards; 9 o'clock, 50 yards.
- ix. Whenever possible, the place or places from which the target can be seen should be stated, or information given as to where a guide can be

procured to lead the artillery observing officer to a point whence he can see the target. This gives the artillery observing officer a chance of having the target definitely pointed out to him.

- x. In mountain warfare, where great differences in height are met with, an indication of the difference of level between the reference point and target must be given. Differences in level should be given in hundreds of feet, thus:—"300 feet up" *not* "350 feet up." No estimate of difference of level is required when the difference is less than 100 feet, neither will difference in level be given when reporting observation of fire as in sub-para. vi.

48. *Judging distance and range cards*

1. *General.*—Fire effect is dependent upon accuracy of range. Ranges can be obtained by means of a range-finder, measured off the map, if the scale is not too small, or judged by eye. On service, ranges should be checked, whenever possible, by actual firing, if not on the target itself, then on a selected point near-by, *e.g.* a dusty road, a patch of dry plough, a pond, or wherever observation of bullet-strike is feasible. Machine-gun sections and platoons normally obtain their ranges by means of the range-finder. Rifle companies will usually judge distance by eye, but should be prepared to check their estimates by the use of maps or by ranges taken by machine-gunners or artillery.

All ranks will be trained to estimate ranges by eye. This is called *Judging Distance*. The standard of

accuracy necessary in judging distance can be gauged by reference to the effective beaten zones of the rifle and light automatic (*see* Secs. 12 and 13). Skill is largely a matter of constant practice under varying conditions of ground, light, etc.

In peace, such practice will be carried out continuously throughout the year. In war, the local conditions of light, etc., in a theatre of war must be studied immediately on arrival, and all ranks tested as to the accuracy of their judging under the new conditions. Advantage should then be taken of every opportunity to practise in order to maintain a high standard.

2. *Methods of judging distance.*—There are two principal methods of judging distance—

- i. *Unit of Measure, i.e.* by measuring the intervening ground in terms of some familiar unit, such as 100 yards.
- ii. *Appearance, i.e.* by the appearance of the object in relation to its size and visibility.

Of these, the first method is only accurate for short distances, say up to 400 yards, and when the ground between the observer and the object to be judged on is visible. But, since this method forms the basis of instruction in judging distance, it must be mastered first. The second method is the simpler, quicker, and the one most suited to war conditions.

3. Once a certain standard of skill has been reached in judging distance by the appearance method, a man's capacity to judge distance may be improved by instruction in applying one or both of the above methods in conjunction with—

- i. *Bracketing.*—In which the observer estimates the *longest* and *shortest* distances to the object, and takes the mean.
- ii. *Halving.*—Judging the distance to a point considered to be half-way and doubling the estimate.

4. Apart from the above methods, which will be taught to all ranks, section commanders and above should be taught the following methods of testing the accuracy of estimates or of obtaining the range:—

- i. *Unit average, i.e.* by taking the average of the estimate of their men.
- ii. *Using a key range, i.e.* by judging the distance with reference to a known range to a near-by object. This latter range may be obtained from range-finders or measured off the map.

5. *Standards of judging*—

- i. Recruits and trained soldiers will be taught to judge distances up to 800 yards.
- ii. Officers, warrant officers, non-commissioned officers and selected soldiers will be taught to judge distances up to 1,400 yards.

6. *Methods of training.*—Instruction will be progressive, practice being given in the first instance in the two principal methods, stress being laid on the "appearance" method, until it is found that distances can be approximately judged from the general impression conveyed to the eye. All ranks will be trained to judge from behind cover, or when lying in the open. The effect of prevailing conditions of light, background, etc., must be borne in mind, *e.g.*—

i. Distances are over-estimated—

- (a) When the sun is shining behind the object.
- (b) When kneeling or lying.
- (c) When background and object are similar in colour.
- (d) When looking across a valley or over undulating ground in dull or foggy weather.
- (e) Over broken ground.
- (f) When the object is small in comparison with other objects in its vicinity.
- (g) When the line of sight to an object is confined within narrow limits, such as an avenue of trees or a "ride" in a wood.

ii. Distances are under-estimated—

- (a) When the sun is shining behind the observer.
- (b) In bright light or clear atmosphere.
- (c) When background and object are different in colour.
- (d) When the intervening space is level (e.g. a plain or water), or the ground is covered with snow.
- (e) When looking upwards or downwards.
- (f) When the object is large in comparison with other objects in its vicinity.

7. *Sequence of training.*—Training will be carried out in the following sequence :—

i. *Unit of Measure*—

- (a) Recruits will be made familiar with the

unit of 100 yards. They will be taught to recognize this distance from the standing, kneeling and lying position.

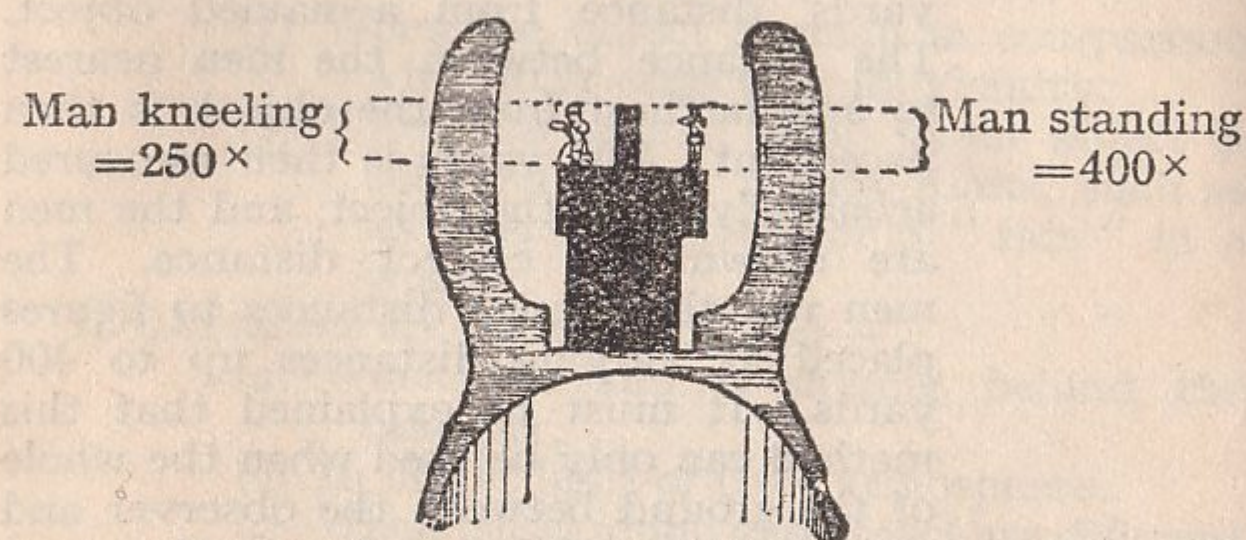
- (b) When familiar with the above unit, men will be practised in judging for themselves as follows :—

The men place themselves independently, at what they judge to be 100 yards' distance from a named object. The distance between the men nearest to and farthest from the object, is then paced out; 100 yards is then measured accurately from the object, and the men are shown the correct distance. The men will then judge distances to figures placed at varying distances up to 400 yards. It must be explained that this method can only be used when the whole of the ground between the observer and the object is visible; and examples must be shown where the method cannot be, or can only partly be, employed.

- ii. *Appearance.*—The appearance of men in different positions and of objects of known size will be studied and noted at various distances, and under all conditions of light, background, etc. A classification range is suitable for the early lessons in this method. It is to be noted that men with normal sight make rapid progress with regard to judging distance on *men*, by training on the following rules :—

- (a) At 200 yards—all parts of body distinctly seen.
- (b) At 300 yards—outline of face becomes blurred.
- (c) At 400 yards—outline of body remains, but face cannot be seen excepting in favourable circumstances.

FIG. 21



- (d) At 500 yards—body appears to taper slightly from the shoulders. Movements of limbs are still discernible.
- (e) At 600 yards—head appears as a dot, details not being discernible; body tapers noticeably.
- (f) At 250 yards and 400 yards—the blade of the foresight of the Rifle No. 1, Mark III (S.M.L.E. .303-inch), covers a man respectively kneeling and standing. (See Fig. 21.)

- iii. As progress is made, the time allowed for judging should be reduced. Men should be questioned regarding their reasons for their estimates and the method they employ. Guessing instead of estimating will never be allowed.
- iv. After the two principal methods have been practised, particularly the "appearance" method, instruction will be given in *bracketing* and *halving* (see para. 3 above.) In *bracketing* the "appearance" method will be used, first, in estimating the *longest* distance to the object, and then in estimating the *shortest* distance, the mean being taken as the range. The further the object appears to be, the greater should be the "bracket," and the difference in the estimate of a "bracket" should not be less than 600 yards. In *halving*, the distance to the selected half-way point will be estimated normally by the "appearance" method. If the half-way point appears to be inside 400 yards, the "unit of measure" method may be the better.
- v. Section commanders and above will be practised in checking estimates of ranges by the "unit average" method and in using a "key range." (See para. 4.)

8. Judging Distance Test—

- i. Personnel of all Cavalry, Royal Engineer Field Units and Infantry will be tested three times during the weapon-training year in judging

distance. At least one month should be allowed to elapse between tests.

- ii. When an individual is transferred from one squadron or company to another, or from a depot to a battalion, or vice versa, a record of the result of the tests which he has carried out during that weapon-training year will accompany his documents. If he has not already completed three tests, the remainder will be carried out with the squadron, company or depot receiving the transfer. His classification will in that case count for the figure of merit for that squadron or company.
- iii. Where facilities allow, a recruit will be tested once when he is at the depot.* The remaining two tests will be carried out after he joins his unit. If, however, he joins his unit within two months of the end of the weapon-training year, he will not be required to carry out the remaining two tests. He will not be classified during that year, nor will he be included when working out the figure of merit.
- iv. The method of carrying out the test will be as follows:—
 - (a) *Limit of distances.*—Recruits and trained soldiers will judge up to 800 yards; subaltern and non-commissioned officers and selected men up to 1,400 yards.
 - (b) *Ground.*—The area of ground selected for a test

* The three tests for cavalry recruits will be carried out in their regiments.

should, if possible, be different for each of the three annual tests. It should be such that, from the positions selected as judging positions (*i.e.* where those under test will lie down or kneel), it will be possible to vary the direction in which the distances are to be judged so that each object will be in a different direction.

- (c) *Aids.*—No assistance from maps, key ranges, or other means will be allowed, but men armed with the rifle may use it as an aid.
- (d) *Distances to be judged.*—Four objects will be selected so that the distances to them from the judging positions shall—
 - Be in multiples of fifty yards.
 - Give a reasonable variety of distances between the limits given in (a).
- (e) *Objects to be judged on.*—Two will be natural objects, such as likely hostile fire positions. Two will be men who, on a given signal from the judging position, will show themselves. To ensure that the men are observed, the object should consist of a pair of men. One of these men will fire three rounds of blank ammunition at a *slow* rate of fire, while the other man will wave a flag until the third round of blank has been fired, when he should stand at the *order* while the distance is being judged.
- (f) *Estimates, how given.*—Always in multiples of 50 yards. Officers and other ranks not armed with the rifle, write down their estimates, others adjust their sights to the estimated distance.

Position for all those under test will be lying or kneeling.

- (g) *Time limits and procedure.*—Half a minute will be allowed for each estimate. The time will be taken as follows :—

For *natural* objects.—From the moment the officer conducting the test is satisfied that his indication of the object has been sufficiently clear to ensure recognition by those under test.

For *men*.—From the sound of the third shot, or, if that is inaudible, from the moment the flag is lowered to the *order*.

At the conclusion of the time limits, a whistle will be blown, whereupon those judging distance will stand to attention, each individual remaining in this position until the register keeper is ready to record his estimate. No adjustment of sights or writing after the whistle sound will be permitted. If any of those under test have failed to recognize any object, they will be recorded as having failed for that object.

- (h) The register keepers will go to each individual in turn and examine the sights of the rifle (or the written estimate) and will record the estimates as shown on the sights (or written down) in the register (A.F. B186). At the conclusion of the last of the four distances, the officer conducting the test will announce the correct distances and, in doing so, he will comment on the conditions of light, shade, background, etc. The object of this is to enable each individual to make notes on his personal record sheet in

his Army Book 142A. (B. or T.), which will assist in his ascertaining why certain distances may have been over or under-estimated (para. 6).

On return to barracks, the correct distances and permissible errors will be filled in (in ink) for each object. Register keepers will then complete the columns under each object and enter the results of the test, which will then be checked and signed by the superintending officer. Registers will be preserved for record.

v. *Standard of efficiency*—

- (a) The percentage of error allowed is—

For distances up to 500 yards	...	...	...25%
„ „ between 500 yards and 800 yards	...	...	...20%
„ „ between 800 „ „ 1,400 „	...	...	...15%

In order to pass, an individual must judge three out of four distances correctly, *i.e.* within the percentage of error allowed above.

- (b) At the end of the year, individuals will be graded as follows :—

1st class judge of distance	...	...	Passed in 3 Tests
2nd „ „	„	...	2 „
3rd „ „	„	...	1 or less
			of the Tests.

- (c) The company figure of merit for judging distance is the percentage of 3rd class of the total number of all ranks in the company who should be tested. Similarly, the battalion figure of merit is the percentage of 3rd class of the total number of all ranks in the battalion who should be tested.

- vi. *Exemptions from judging distance tests.*—These will be the same as the total exemptions from annual range courses.
- vii. All individuals other than those exempted from judging distance tests will be classified as in paragraph v. (b) above. No allowance will be made for tests which have been omitted. Thus, men who have not been fully tested must be classified as 2nd or 3rd class according to the number of tests passed. An individual who does not attend any test will be graded as 3rd class.

9 Range Cards—

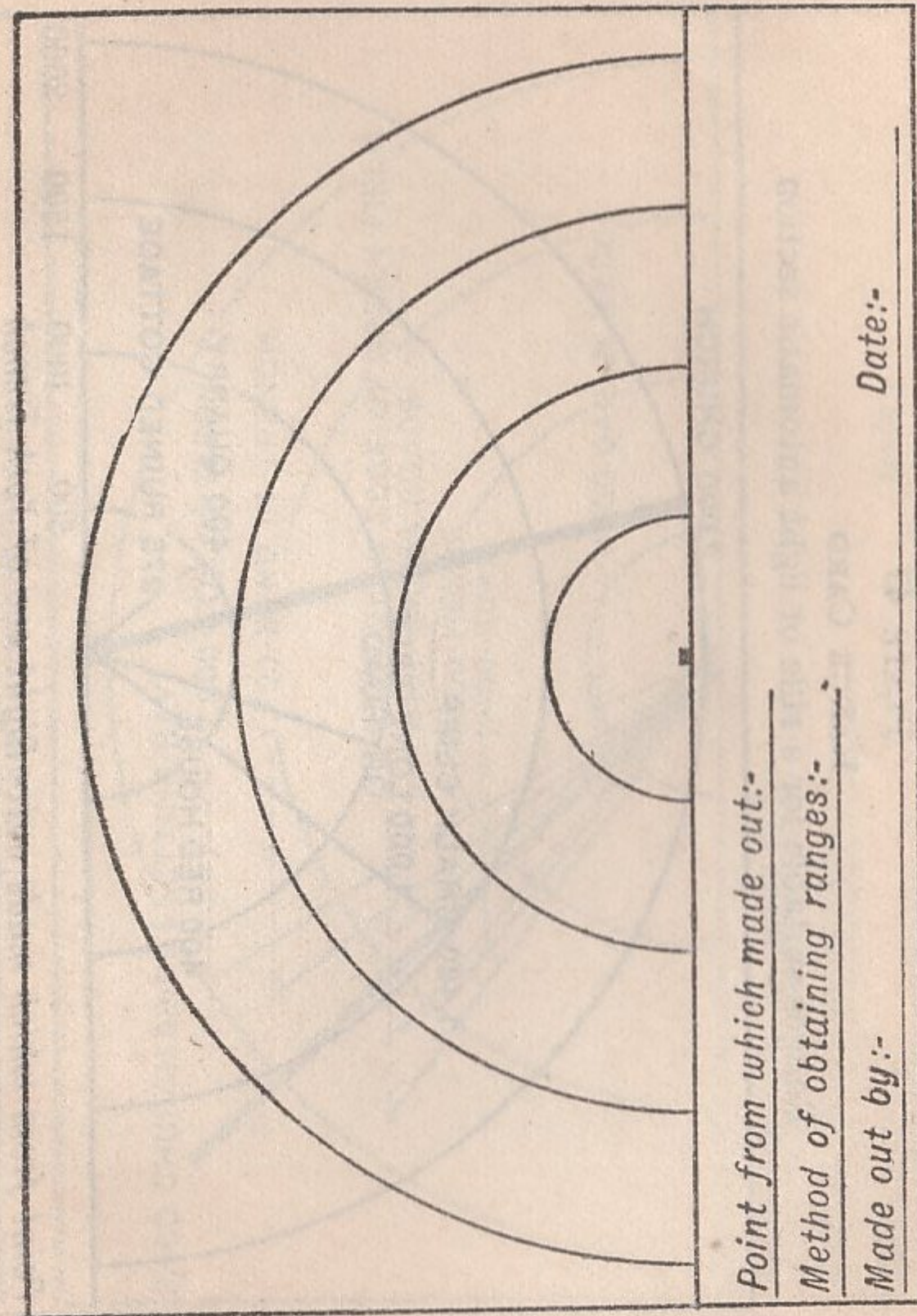
- i. All ranges, however obtained, should be at once recorded on a range card. The range card is an article of store and will be carried in the field.. (Plate 46.)

Range Card as issued.—It should be noted that the card is marked with four equidistant semicircles which can be used to represent any series of ranges up to 2,000 yards, according to whether they are for use by a rifle, light automatic or machine-gun fire unit.

- ii. The successive steps in filling in a range card are as follows :—
- (a) Mark off on the card the position from which the ranges are taken. Describe this position accurately.
 - (b) Select an unmistakable object in the

To face page 216]

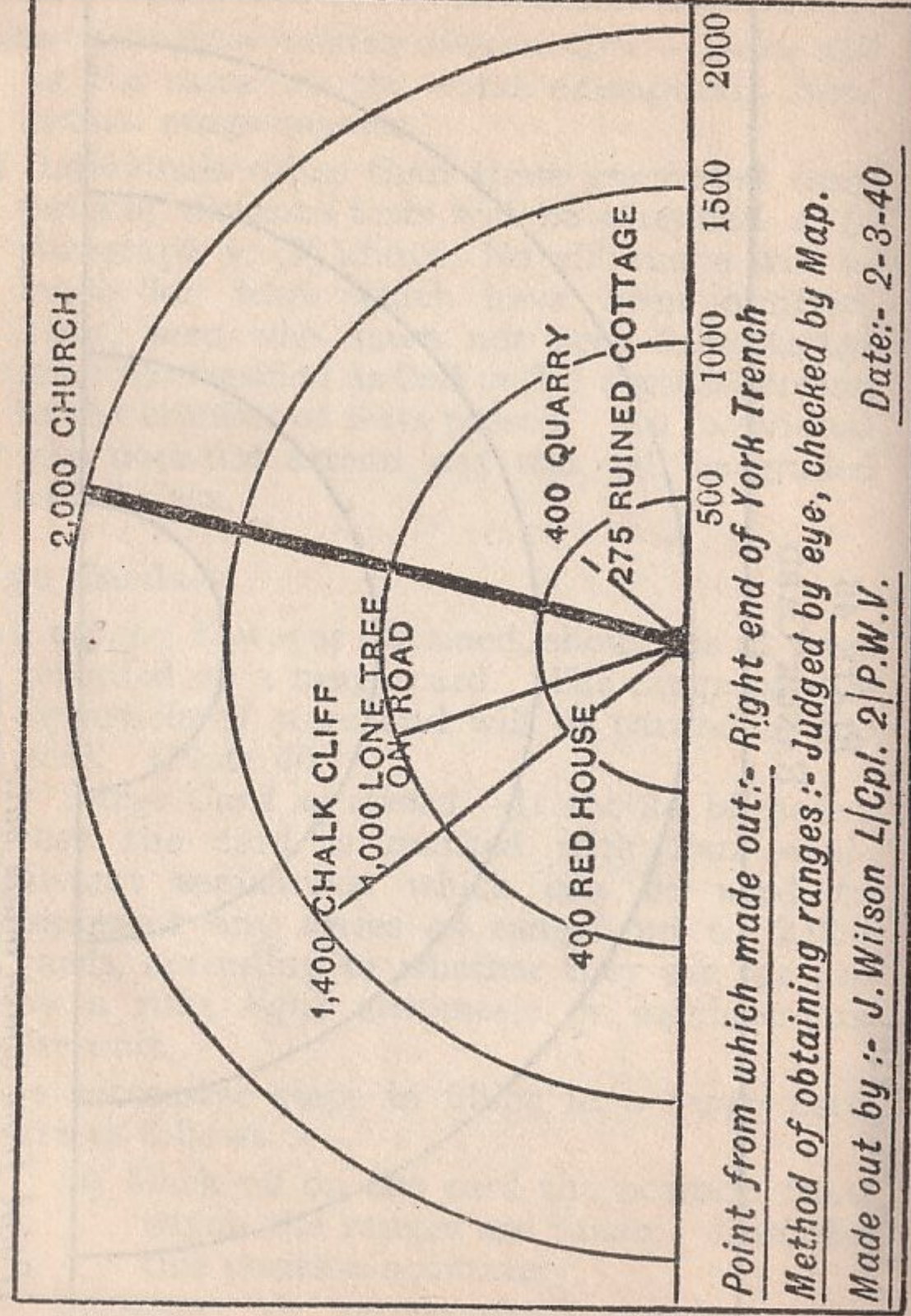
PLATE 46
RANGE CARD



To follow Plate 46]

PLATE 47 RANGE CARD

Ranges suitable for a rifle or light automatic section



To follow Plate 47]

PLATE 48 RANGE CARD—TRUE ANGLES Too close together for use

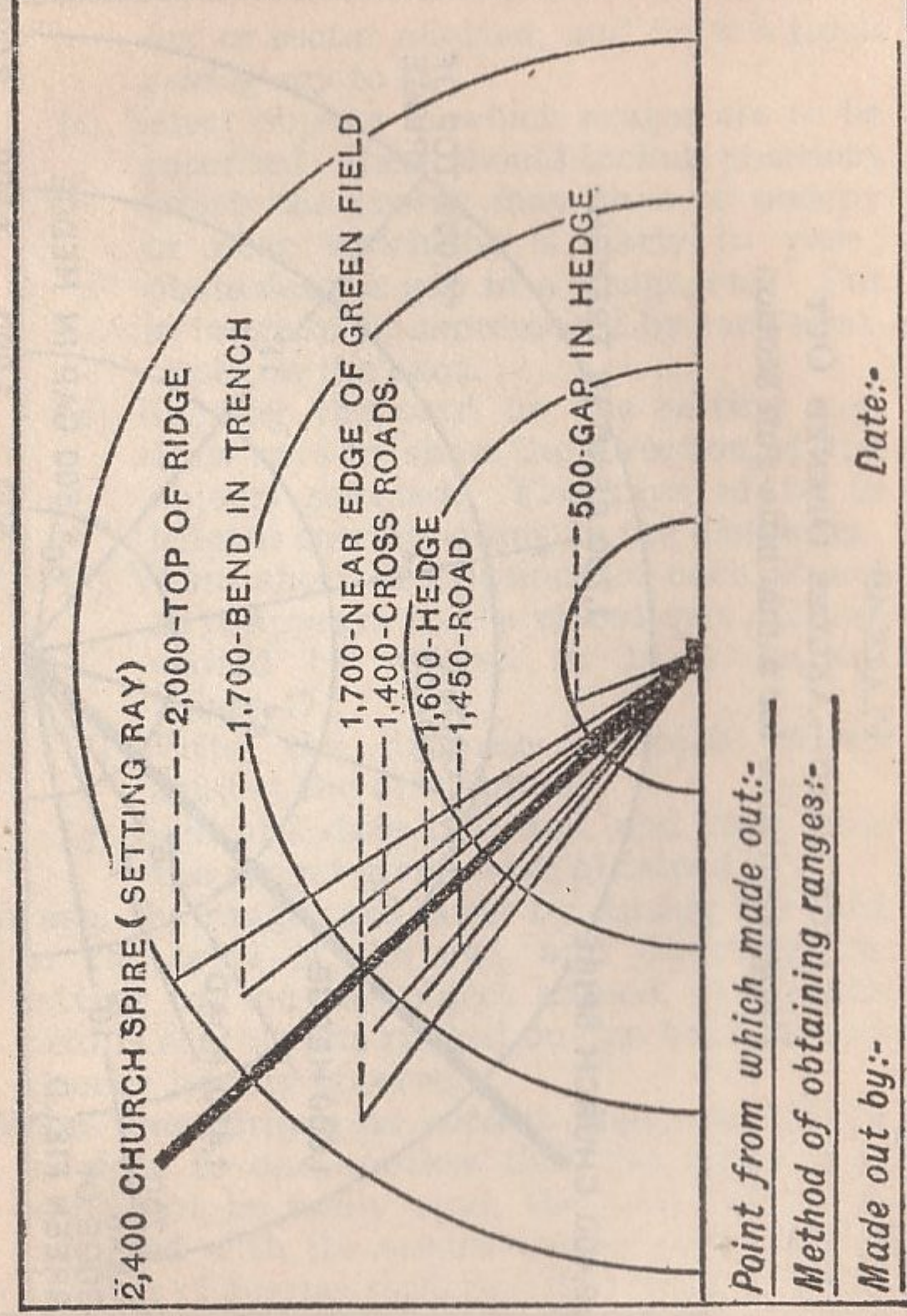
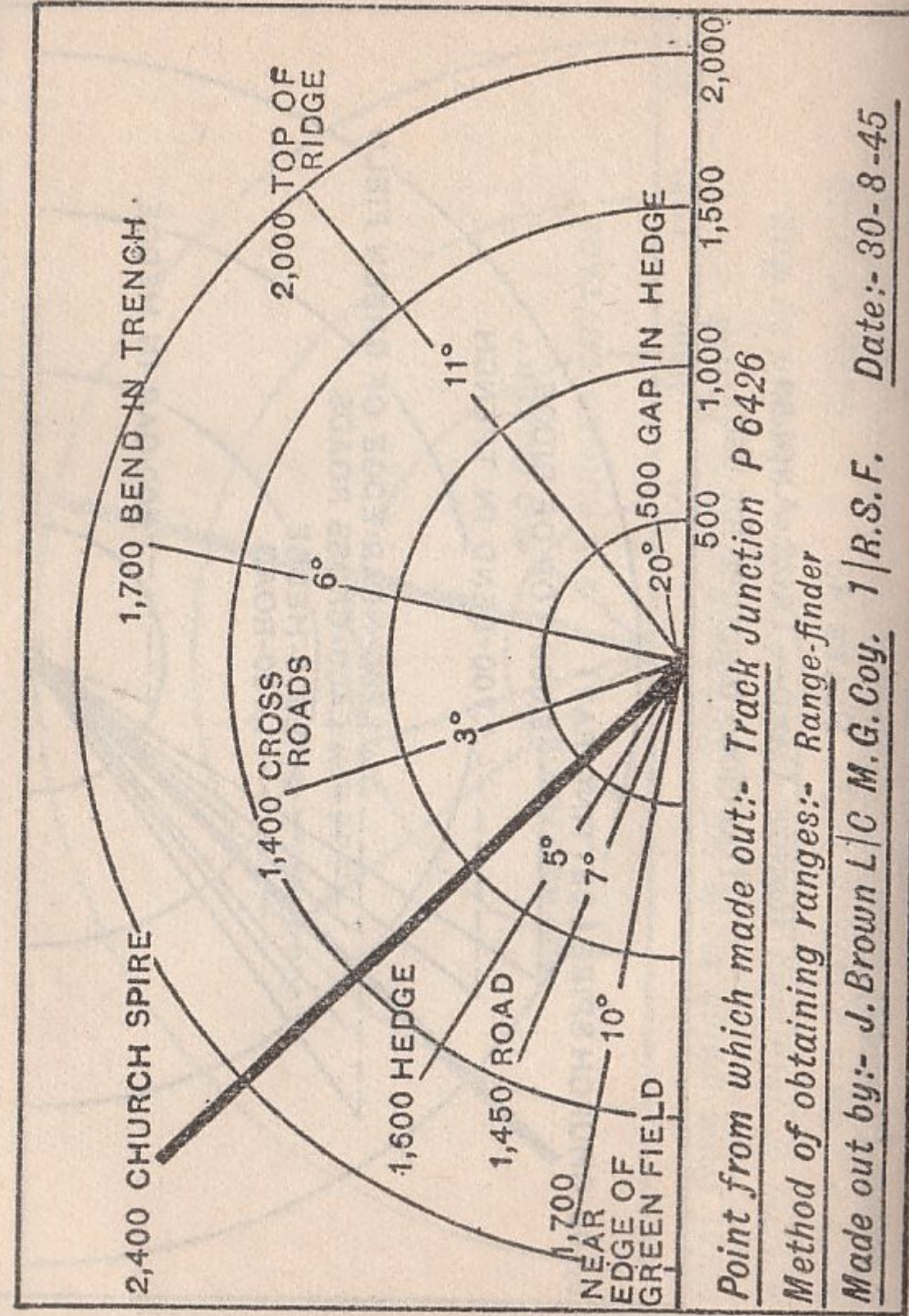


PLATE 49

RANGE CARD—ANGLES OPENED OUT Ranges suitable for a machine-gun section



- arc or sector allotted, and draw a thick *setting ray* to it.
- (c) Select objects to which ranges are to be recorded: these should include positions which the enemy may have to occupy or near which he is likely to pass; obstacles; a gap in a hedge, etc. Put in range to be represented by each semi-circle on the card.
 - (d) Keeping the card on the setting ray, draw rays to show the direction of the objects selected. The rays to be in lengths corresponding to the distances.
 - (e) Write short descriptions of each object as it appears to the naked eye. These should be written in block letters. (Plate 47.)
 - (f) Write the distance to each object against the description.
 - (g) Sign and date the card, and state how the ranges given were obtained.
- iii. In use, the range card is set by raising the card to the level of the eye, and directing the setting ray on the object named. Once the card is set, objects ranged on can be identified at once by any observer.
 - iv. When lines drawn at correct angles would be so close to one another that the range card could not be easily read, the card should be prepared with the angles opened out, and the number of degrees right or left of the setting ray written against each ray. (Plates 48 and 49.)

49. *Application of fire**

1. The following terms will be used :—

- (a) **The Fire Plan** is the arrangement made by the commander to ensure that the fire of all the weapons of which he disposes is co-ordinated and directed in accordance with his intention.
- (b) **Fire Direction Orders** are instructions given to fire unit commanders as to how their fire is to be applied.
- (c) **Fire Control Orders** are the orders given by a fire unit commander to his men.

2. The normal rifle and light automatic fire unit is the section. In battle, whether in attack or defence, fire will be controlled by the section commander as long as possible. In battle, conditions will sometimes exist where control by the section commander is difficult or impossible, and no fire orders (or only the briefest instructions) may be possible, or it may be obvious to all that fire is required, *e.g.* to beat down a counter-attack. Every man of the section should understand and should have been trained how to apply fire to the best advantage in such circumstances.

3. The following simple system of fire application will be instilled into all ranks :—

The fire of the men of the section may be applied in two ways : (i) concentrated ; or (ii) distributed.

* This section refers primarily to rifle and light automatic fire.

- i. Concentrated fire implies that every man of the section applies his fire to the same point.
- ii. When distributed fire is either called for obviously by the situation, or ordered by the section commander, fire will be applied in the following manner :—

The limits between which fire is to be distributed having been named, or being obvious, each rifleman of the section will fire at the approximate point between these limits which corresponds to his actual position in the section. Each light automatic will fire in groups of bursts at irregular intervals within these limits. The breadth of the foresight can be taken as a good guide for the amount of alterations of aim between bursts of fire in each series of bursts.

The width of the cone of fire must be considered by fire unit commanders when dealing with linear targets, as cases will arise in which the width of the cone is sufficient to cover the width of the target area ; in such circumstances concentrated fire will ensure better fire effect. For practical purposes the width of the cone of fire from a rifle section may be taken to be one per cent. of the actual range to the target.

To obtain the maximum fire effect with distributed fire, the target indicated should afford some line or marks which will enable each firer to maintain correct elevation, *e.g.* a line of men in the open, a hedgerow, wall, etc., or definite objects indicating the right and left extremities of the target.

4. This system of fire distribution, which is explained diagrammatically in Plate 50, has the following special advantages* :—

- i. It ensures that the fire of each section is distributed over the whole of the target.
- ii. It allows any section commander to switch his fire against any other target that the situation may demand, whilst the whole of the original target remains under the fire of the other sections.
- iii. It allows of movement by one section taking place whilst fire is still applied to the whole target by other sections.

50. Fire control†

1. For the purpose of teaching fire control to fire unit commanders the subject should be divided into—

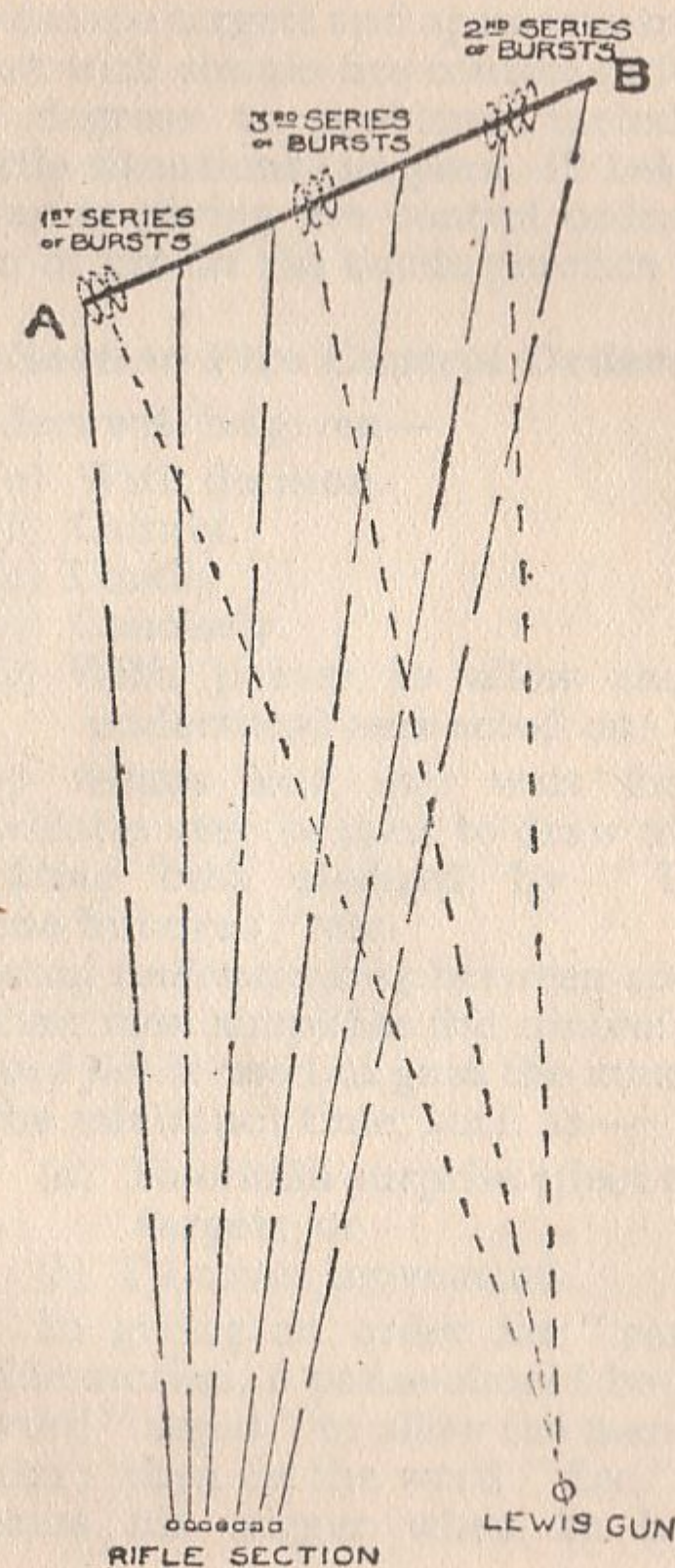
- i. Training in the parts of the subject separately—
 - (a) Indication of target.
 - (b) Judging distance ; with the special object of increasing powers of judging distances up to 1,400 yards.
 - (c) The construction of range cards.
 - (d) Factors affecting the application of fire.
 - (e) Fire control orders.
- ii. Practice in giving fire control orders, using both

* Does not apply to distribution practices fired on the classification ranges.

† This section refers primarily to rifle and light automatic fire units, but also forms the basis of instruction in machine-gun fire control. (See Volume III.)

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PLATE 50 SYSTEM OF FIRE DISTRIBUTION



A—B = Limits indicated by fire unit commander.

landscape targets and open country. This should start with simple fire control orders, progressing by degrees to problems including imaginary battle situations (*see* para. 12 below).

- iii. Testing in giving fire control orders and observation of fire on the battle practice range.

2. Rifle Section Fire Control Orders—

- i. Orders will be given—

- (a) With decision.

- (b) Calmly.

- (c) Loudly.

- (d) Concisely.

- (e) With pauses to allow each part to be understood and acted on.

- ii. *Stop* means load and wait for orders. The whistle may be used to draw attention.

- iii. *Sighting* best changed by "Up (or Down) one hundred," etc.

- iv. *Mutual understanding* between commanders and their men simplifies fire control orders.

- v. *Rapid fire* is used to gain the maximum effect in the minimum time, such as—

- (a) To obtain surprise effect on a vulnerable target; or

- (b) To cover movement.

In giving an order for "rapid fire" to a rifle section, a pause should be made after the word "rapid" to allow the men to come to the aim; then on the word "fire," each man will press his trigger when he has taken aim.

Rapid fire is aimed fire, and no attempt should be made to obtain a "volley," though it is desirable for the fire unit to open fire practically simultaneously.

3. Fire control orders for "ground" targets may be of three different kinds—

- i. Normal.
- ii. Brief.
- iii. Anticipatory.

An example of each is given below.

4. A **normal fire control order** is a full and complete order, containing—

- i. Designation of unit, *e.g.* "**No. 5 Section.**"
- ii. Range, *e.g.* "**Five Hundred.**"
- iii. Indication, *e.g.* "**Quarter Left—Gateway—Right—One Width.**"
- iv. Number of rounds, *e.g.* "**Five Rounds.**" On the number of rounds being named, firers will put forward their safety catches.
- v. Kind of fire, *e.g.* "**Fire,**" or "**Rapid Fire.**" If rapid fire is ordered, firers will come into the aiming position on the word "**Rapid.**"

5. The reasons for the above are—

- i. To make it clear to whom the order is addressed.
- ii. The range is given next so that once sights are adjusted attention can be concentrated on recognizing the target. Knowledge of the range also limits the area in which to search for the target. (For moving targets, see Sec. 27.)

iii. The indication of the target is given third and includes its direction and description. (Sec. 47.)

iv. The number of rounds, normally five, is named in order to control the expenditure of ammunition and to ensure a lull in the firing, during which fresh orders can be given if necessary. The kind of fire ordered should be that which the target and the situation at the moment demand.

6. *Indication for concentrated fire.*—The point of aim must be given. This may be either part of the actual target or an auxiliary aiming point. When no special part of the target or auxiliary aiming point is mentioned, the lowest central portion of the mark will be taken.

7. *Indication for distributed fire.*—The limits between which fire is to be distributed will be named. Each section will distribute within the limits indicated, as already explained in Sec. 49.

8. **Brief Fire Control Orders** are used when the target is an obvious one, and when time does not admit of a full fire control order being given, *e.g.* "**Sights Down—Quarter Left—Rapid Fire,**" or "**Three Hundred—Half Right—Rapid Fire.**"

9. **Anticipatory Fire Control Orders** are used in both attack and defence, anticipating either the movements of our own troops or those of the enemy.

Examples—

- i. *Attack.*—"No. 5 Section—Four Hundred—Farm House—Immediately Below—Hedgerow. No. 6 Section is moving up

that covered approach on our right. We must cover their advance while they cross that bit of open ground. Await my order to fire."

- ii. *Defence*.—"No. 3 Section—Five Hundred—Quarter Right—Small Wood. When the enemy comes out into the open, open Rapid Fire on my order."

From the above it will be seen that all preparations for opening fire have been made, but the actual opening of fire is withheld until it is required.

10. Light Automatic Section Fire Control Orders—

- i. Unless otherwise stated, a fire control order given to a light automatic section implies that the gun only will fire.
- ii. If the section commander wants to use his rifle fire at the same target as his gun, he will order "**Gun and Rifles**."
- iii. If the gun is temporarily out of action, or the section commander wishes to engage a target with rifle fire, the fire control order will be preceded by the word "**Riflemen**."
- iv. The rate of fire to be used with the gun will be controlled as follows:—

If the fire control order is—

Fire:—The firer will fire at the rate of five bursts a minute.

Rapid Fire:—The firer will fire in bursts, with just sufficient pauses between bursts to observe the fire and re-lay aim.

- v. The duration of the fire can be controlled in two ways, either by—

- (a) Stating the number of bursts before the order "**Fire**" or "**Rapid Fire**"; or
- (b) Not mentioning any definite number of bursts, but merely giving the order "**Fire**" or "**Rapid Fire**" followed by the command "**Stop**."

11. **Fire Control at night, or in fog or mist**.—At night, where conditions are rendered difficult by darkness, fire control will be limited to brief commands, *e.g.* "**Fire**," "**Rapid Fire**," "**Stop**." The material effect may not be considerable, except against an enemy in movement, but the moral effect will be great.

The greatest effect will be produced by foreseeing likely enemy lines of approach and by arranging to sweep these with fire. Possible methods comprise laying rifles and light automatics in rests constructed in daylight, or by preparing illuminated aiming marks giving a horizontal line of sight.

12. Methods of practising Fire Control Orders—

- i. The instructor has two rifles in aiming rests and uses either one or both as required, *e.g.* *one* when a concentrated fire order is required, and *both* for a distributed fire order, one rifle being laid on each end of the target to show the limits of distribution. Either landscape targets or open country can be used. The fire unit commander under instruction who is to give the fire order then looks along the key rifle or rifles and proceeds to give out his fire order. The others under

instruction, also using their rifles in rests, lay their rifles on what they recognize to be the target, and then stand clear.

The instructor then looks along each rifle in turn and discusses—

(a) The fire control order given; and

(b) The fire effect that would have been obtained by the squad.

- ii. Concealed men are called up individually, and fire blank; meanwhile the squad, except the commander, is turned away. The men again conceal themselves; the squad is turned about. The commander gives his fire control order; the squad adjusts sights, and each man lays his rifle from his rest on the point at which he would have fired. The men are again called up, aims and sights are checked. The fire orders and probable effect of fire are then discussed. As progress is made, two men may be called up at a time and orders given for distribution between the points which they mark.

(a) The suitability or otherwise of the orders should be discussed with reference to the nature of the targets, and the following method of discussion is suggested:—

When it is found that no fire effect would have been obtained, the fire control order should be analysed and the poor result traced either to the squad or the faultiness of the fire

control order, *e.g.* was the range given approximately correct? If so, the squad has no excuse for looking for the target at any other distance. Was the indication clear and short, or was there room for doubt? Was the volume and rate of fire ordered suitable to the target? Were aids used when there was no necessity for them?

(b) In the above exercises, absolute accuracy of aim on the part of the squad must be insisted on.

- iii. By the use of men carrying flags, problems in fire control can be set requiring all types of fire orders. These men will be placed to represent various situations, one man being sufficient to indicate a situation calling for concentrated fire, two to mark the limits of a linear target. Two men may sometimes be used to represent scouts for a situation requiring an anticipatory fire order.

The instructor, having given reference points and key ranges, will indicate to those under instruction the general direction in which to look, telling them whether they represent rifle or L.A. section commanders. By pre-arranged signal he will then call up the required situation, when the men with flags will fire a few rounds of blank and then show themselves. After a suitable interval they will disappear on a given signal and the squad will be told to write their fire orders.

A discussion of the results will follow.

51. Training in the use of ground

1. During firing instruction with the rifle behind cover and in advanced handling with the light automatic, the soldier is taught how to modify his firing positions to suit various forms of ground. He acquires further knowledge during Fire Discipline Training, and in Visual Training he is taught the elementary study of ground.

2. To use ground skilfully the man must understand the value of different features as being suitable for—

- i. Observation.
- ii. Fire effect.
- iii. Concealment from view.
- iv. Protection from hostile fire.

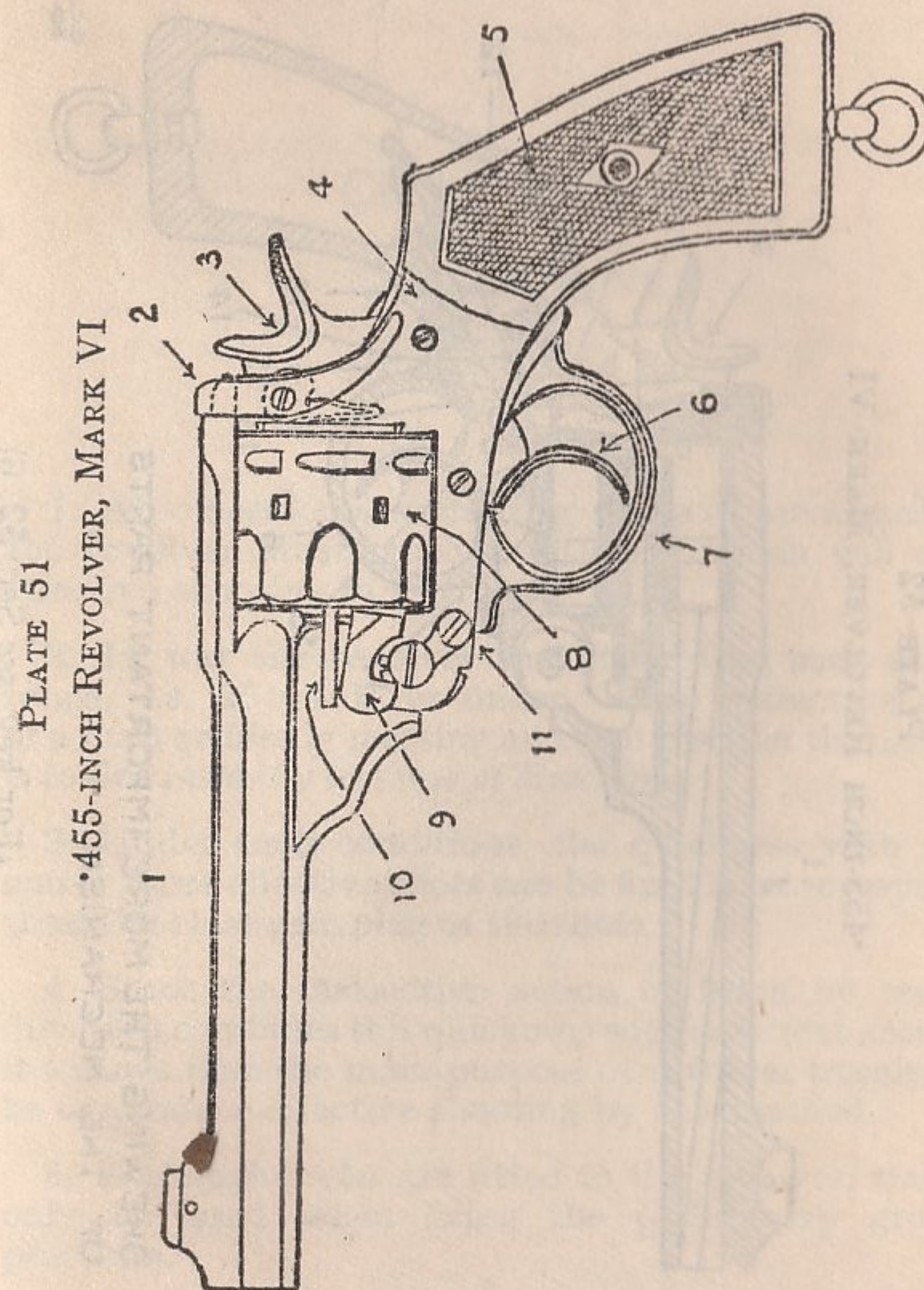
He must also appreciate those features which are serious obstacles to movement.

3. In deciding how to move, men should be able instinctively to weigh up the advantages and disadvantages of the ground and to make decisions logically and rapidly. For this, constant practice on varying ground is essential. They must acquire the habit of deciding, subject to the section commander's orders—

- i. The place to make for.
- ii. The route by which to move to that place.
- iii. The speed at which to move.

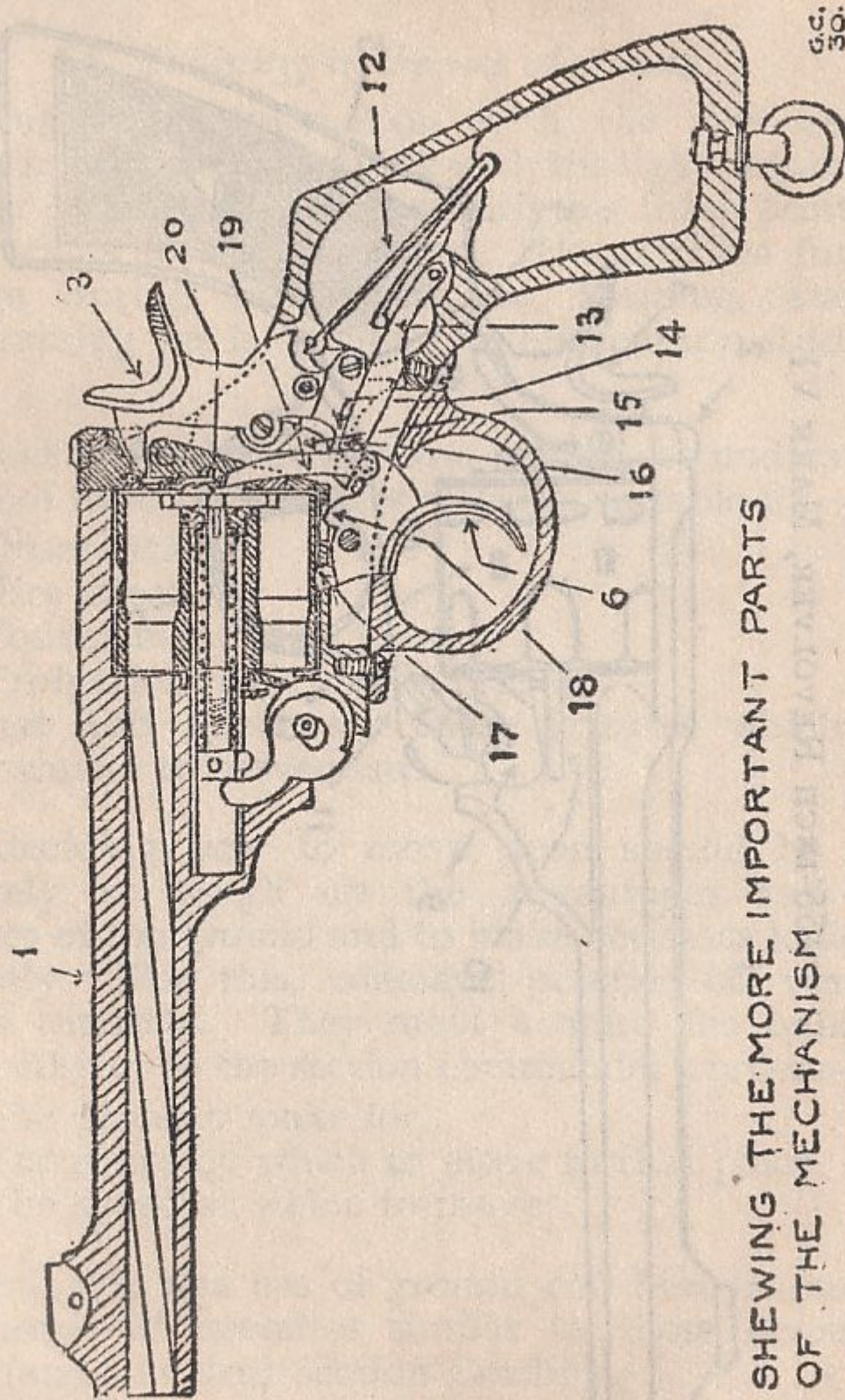
4. Training in the use of ground can best be carried out by means of exercises similar to those given in Infantry (and Cavalry) Section Leading.

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(For Key, see Sec. 52, 6)

PLATE 52
•455-INCH REVOLVER, MARK VI



SHEWING THE MORE IMPORTANT PARTS
OF THE MECHANISM

(For key, see Sec. 52, 6)

CHAPTER VI

THE REVOLVER

(Plates 51 and 52)

52. Introductory

1. All officers and such other ranks as are armed with the revolver must reach a standard which will ensure effective shooting in war.

2. In war the revolver should only be used at close range, *i.e.* 25 yards or under. The instinctive action of a man suddenly meeting an enemy within this distance is to fire *instantly by sense of direction*.

3. Under such conditions, the quickness with which one or more effective shots can be fired is more important than the close grouping of the shots.

4. Since the instinctive action of firing by sense of direction combines this quickness with sufficient accuracy, it follows that the main purpose of revolver training will be to produce effective shooting by this method.

5. Although *sights* are fitted to the revolver, they will only be used when firing the preliminary grouping practices.

6. *Key to the names of the parts of .455-inch Revolver, Mark VI. Referred to in Plates 51 and 52.*

- | | |
|-----------------|-----------------------------|
| 1. Barrel. | 11. Cam-lever fixing screw. |
| 2. „ catch. | 12. Mainspring. |
| 3. Hammer. | 13. „ auxiliary. |
| 4. Body. | 14. Hammer bent. |
| 5. Stocks side. | 15. „ catch. |
| 6. Trigger. | 16. Trigger, nose of. |
| 7. „ guard. | 17. „ stop. |
| 8. Cylinder. | 18. Cylinder stop. |
| 9. „ cam. | 19. Pawl. |
| 10. Case guide. | 20. Ratchet. |

53. Characteristics

The characteristics of the revolver and the deductions therefrom are—

- i. A one-handed weapon used without support to hand or arm. Therefore—
 - (a) It is unsuitable for firing by deliberate aim.
 - (b) Correct holding and trigger release are of increased importance.
 - (c) The firer must be able to fire with either hand.
- ii. A short barrel which :—
 - (a) Aids quickness in shooting at surprise and moving targets.
 - (b) Restricts the range at which accurate shooting is possible.

- (c) Makes the weapon dangerous if carelessly handled, since it can so easily be pointed or discharged in the wrong direction; this necessitates adequate safety precautions when in use.
- iii. A high rate of fire combined with the stopping power of the bullet, giving it special advantages in close-quarter fighting.

54. System and sequence of training

1. The system of training, based on the characteristics of the weapon, together with the requirements of service shooting, is designed to develop in the individual the ability to—

- i. Handle the revolver with safety.
- ii. Use it with either hand.
- iii. Hold it correctly.
- iv. Release the trigger correctly.
- v. Use his instinctive pointing sense.
- vi. Shoot quickly by sense of direction.

2. The standard required is that an efficient shot should be able to place a bullet in a 16-in. by 12-in. rectangle at ten yards in one second.

3. To this end the following subjects are dealt with in the sequence shown :—

- i. Introduction and characteristics, in the form of a short talk by instructor prior to commencement of training.
- ii. Safety precautions.
- iii. Care and cleaning.

- iv. Revolver drill.
- v. Correct holding.
- vi. Firing instruction—single action.
- vii. Firing instruction—double action.
- viii. Grouping.
- ix. Tests of elementary training.
- x. Mechanism (Instructors only).
- xi. Muscle exercise.

55. Safety precautions

The following safety precautions will be read out on all revolver training parades until the instructor is satisfied by questioning his class that each man knows them thoroughly.

- i. The revolver will always be proved (*i.e.* open and inspected) when drawn from the case or picked up.
- ii. The revolver will always be proved when given to or accepted from another individual.
- iii. The revolver will always be kept in the case except when drawn for a definite purpose.
- iv. No indiscriminate snapping will be allowed; snapping at another man's eye will not be practised with dummy cartridges in the revolver.
- v. When out of the case and not in actual use, the revolver will always be carried at the "rest" position and not hanging at the side pointing to the ground.
- vi. The revolver will never be opened or closed with the hammer cocked.

56. Care and cleaning

LESSON I.—SAFETY PRECAUTIONS; MATERIALS; CARE, WEAR AND CLEANING

1. *Preliminaries*.—With squad seated round a table, instructor will—

- i. Ensure that revolvers are unloaded.
- ii. Read out the safety precautions.

2. State object of lesson.—To ensure that the revolver will be properly cared for at all times so that the best results may be obtained.

3. Instructor shows *materials* and explains that service flannelette and oil, lubricating, G.S., will always be used, the flannelette in pieces 4" × 4" for removing fouling, and 4" × 2" for oiling the *bore* and *chambers*, in conjunction with the *cleaning rod* issued with the revolver.

4. The *cleaning rod* will be inserted from the *muzzle* end of the *barrel*.

EXAMINATION OF BORE

5. Instructor explains that, in the case of a solid frame revolver, the thumb-nail must be placed at 45° to the breech end of the *bore* so as to reflect the light, and the *bore* examined by looking down the *muzzle*.

CAUSES OF WEAR

6. *Teach by question and answer*.—The causes of wear in the *bore* of a revolver are similar to those in the *barrel* of a rifle, *i.e.*—

- i. Friction of bullet.
- ii. Erosion.
- iii. Fouling: (a) Corrosive; (b) Superficial.

CARE

7. When properly cared for the revolver will fire many thousands of rounds before wearing out. When the weapon is new the *bore* has a bright polish which is a great safeguard against rust and pitting. The polish will, of course, diminish gradually with constant firing, but neglect in cleaning will destroy it very quickly. Instructions for cleaning, therefore, will be strictly adhered to.

8. When the revolver is not in use it will be kept in the leather case, with the tab of the case buttoned. The case must be dry. When putting a revolver away permanently, it is better to keep it in strong grease-proof paper rather than in the leather case, the weapon being first treated with mineral jelly.

9. When opening or closing a revolver the *hammer* must be down, otherwise—

- i. The *cylinder* may be damaged.
- ii. Injury to the *trigger* mechanism and *pawl* will occur.
- iii. If the revolver is loaded, a premature explosion may occur.

10. The *cylinders* of revolvers will not be exchanged. The number of each is stamped on the *cylinder* and must agree with that on the *body* and *barrel*.

11. For complete cleaning, as when after firing, the *cylinder* will be removed. Care will be taken that the *cam-lever fixing screw* is not lost. In assembling, care must be taken that the *cylinder* is home, and the *cam-lever fixing screw* is securing the *lever*, *cam*, *cylinder* in position before an attempt is made to close the revolver.

12. Revolvers will be examined frequently for rust and dirt.

CLEANINGS

13. Instructor explains that the instructions relating to the cleaning of the rifle apply equally to the revolver.

14. Explain cleanings—

- | | |
|--------------------|-------------------|
| (a) Daily; | (c) After firing; |
| (b) Before firing; | (d) Gas. |

15. (a) **Daily.**—The *bore* and *chambers* will be cleaned daily with slightly oily flannelette. The exterior of the revolver and the working parts will be slightly oiled after all dirt or dust has been removed. Daily cleaning for a period of four or five days after firing, or when specially ordered, will be as above, except that the *bore* and *chambers* will be cleaned with pieces of dry flannelette until no fouling is present, and then immediately re-oiled.

(b) **Before firing.**—All traces of oil will be removed from the *exterior*, *bore* and *chambers*, and the action wiped with oily flannelette.

(c) **After firing :—**

- i. Remove *cylinder* by unscrewing the *cam-lever fixing screw*.
- ii. Remove the superficial fouling (particles of burnt powder and shavings of lead) with dry flannelette and the *cleaning rod*.
- iii. Clean out with tightly-fitting oily flannelette, or use boiling water.
- iv. Pass clean, dry flannelette through until no more fouling comes away.

- v. Oil the *bore* and *chambers* with clean, oily flannelette.
- vi. Oil the outside of the revolver.
- vii. Pay special attention to the removal of fouling from—

The *trigger stop*.

The *cylinder stop*.

The *pawl*.

The hole for the *hammer nose*.

(d) **After gas attack.**—Oil-cleaning will prevent corrosion for twelve hours, but the first opportunity must be taken to clean all parts in boiling water containing a little soda. (See also Sec. 23.)

57. Revolver drill

LESSON 2

1. *Preliminaries.*—Inspect revolvers and dummies—extend squad. Read out or interrogate on safety precautions.

2. *Sequence of Instruction.*

- i. Instructor states that the object of revolver drill is to ensure that revolvers are not loaded on parade, and that men learn to handle the weapon with safety when firing on the range.
- ii. Instructor gives complete demonstration, naming phases—

Drawing revolver for inspection.

Proving revolver.

“Rest” position.

Returning revolver from the “rest” position.



REVOLVER—"DRAW REVOLVERS" POSITION



Instructor explains that this method will be applied to all firing, whether as instruction on parade or on the range.

Stage I.—Drawing and Returning Revolvers.

i. Instructor demonstrates with detail and squad imitates—

(a) **"For inspection—draw revolvers."**

(Plate 53.)

Bring the left hand to the *case*, seize the *tab*—with the forefinger and thumb, and unbutton the *case*.

Draw the revolver with the right hand. Bring it to the vertical position in front of the body, *muzzle* downwards.

Grip the *barrel* with the left hand, the thumb pressing against the *case guide* and *cylinder fluting*, and open the revolver, keeping the left hand and *barrel* stationary. Elbows to sides.

(b) **"Return—revolvers."**

After the revolver has been inspected and the inspecting officer has passed the next file, close the revolver by raising the *butt* to the *barrel*, keeping the left hand stationary. Then return the revolver to the case with the right hand. Button the case with the left hand. Stand to attention.

ii. Squad practises individually. Instructor checks.

Stage II.—Proving Revolvers and Rest Position. (Plate 54.)

. Instructor demonstrates with detail and squad imitates—

(a) “**Prove—revolvers.**”

Draw the revolver as already taught and, keeping the elbows stationary, turn the *breech* of the revolver towards the instructor.

(b) “**Rest.**”

Close the revolver.

Stand to attention, the revolver in hand, pointing downwards and towards the target at an angle of 45 degrees from the body, the forearm resting against the hip, trigger finger outside the *trigger guard*.

- ii. Squad returns revolvers.
- iii. Instructor explains that during empty revolver instruction, on the command “**Draw-revolvers,**” the revolver will be drawn from the case, proved, closed, and the “rest” position adopted.
- iv. Squad practises individually, instructor checking faults.
- v. Instructor interrogates the squad.
- vi. Squad practises complete drill by word of command.
- vii. Further practice as required.

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PLATE 54

REVOLVER.—“REST” POSITION



58. *Holding*

LESSON 3

1. *Preliminaries*—

- i. Inspect revolvers and dummies. Extend squad.
- ii. Read out or interrogate on safety precautions.

2. *Sequence of Instruction.*

- i. Instructor explains that correct holding is based on the instinctive power of the eye to control the pointing of the hand. A correct hold ensures that when a man raises a revolver quickly to fire at a mark upon which the eye is fixed, the *barrel* is correctly aligned.

Stage I.—Instinctive Pointing Sense.

- i. Instructor demonstrates and explains instinctive pointing sense and master eye—

(a) Instructor points at an object with both eyes open; then, closing the left eye, explains that he is noting where the finger is pointing with reference to the object.

(b) The above action is repeated, closing the right eye.

The fact that an individual will always point at the same position relative to the object given proves that he possesses instinctive pointing sense.

- ii. Squad practises individually.
- iii. Instructor explains that, with reference to (a) and

(b) above, there is a slight variation in the position of the finger with reference to the object, according to the eye used. From this it follows—

- (a) If, with the *left* eye closed, the finger is found to be pointing directly at the mark, the *right* eye is the master eye.
- (b) If, with the *right* eye closed, the finger is found to be pointing directly at the mark, the *left* eye is the master eye.
- (c) If the finger is found to point an equal distance to right or left of the object when alternate eyes are closed, the vision is *central*.

iv. Instructor explains that the instinctive pointing sense and master eye are used in revolver shooting so that the revolver may be fired, not by deliberate, but by instinctive aim. This aim is controlled by sense of direction, provided that the hold is correct. The individual will satisfy himself as to the accuracy of his instinctive aim by checking with his master eye.

Stage II.—Finding the Correct Hold.

- i. Instructor explains that, after the master eye has been found, the revolver must be held so that on raising it, it comes into automatic alignment with the line of vision. This applies to each hand.

- ii. Instructor demonstrates the correct hold, giving the detail (see Figs. 22 and 23). Squad imitates.

FIG. 22

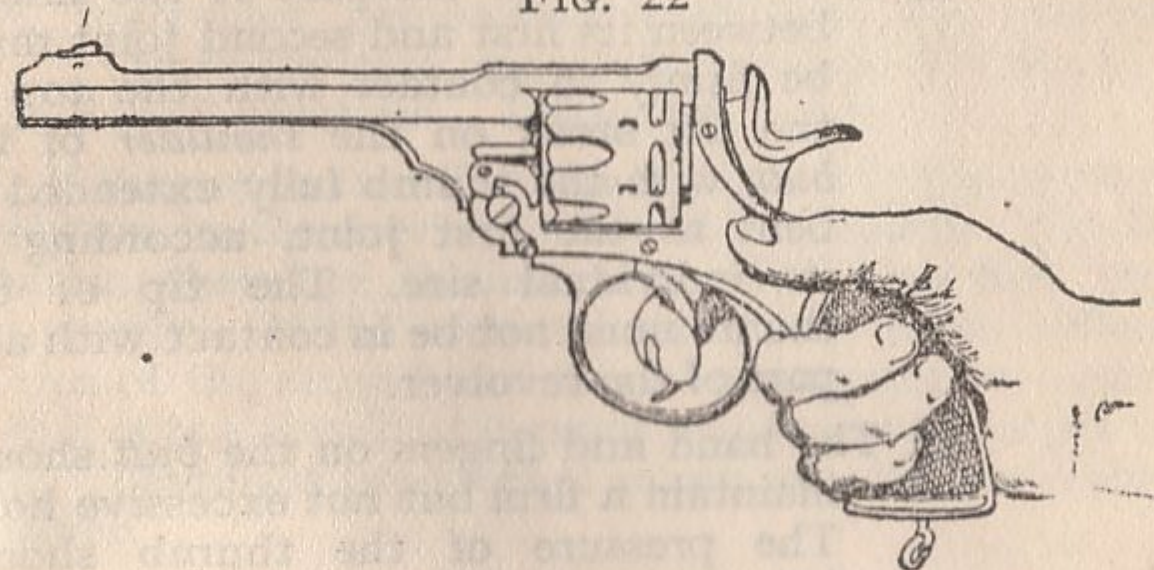
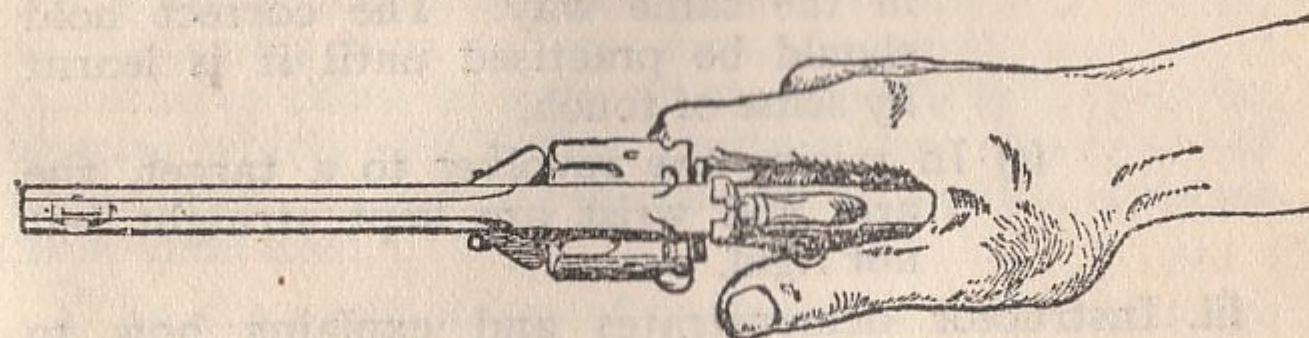


FIG. 23



- (a) The first joint of the forefinger should be on the lower part of the *trigger*.
- (b) The three remaining fingers clasp the *butt*, the second finger close up behind the *trigger guard*, and the second joint of this finger beyond the left side of the

trigger guard; the inside surface of these three fingers and of the hand to be in close contact with the *butt*.

(c) The inner side of the part of the thumb between its first and second joint must be firmly in contact with the top of the left stock on the *shoulder* of the *butt*, with the thumb fully extended or bent at the first joint, according to its individual size. The tip of the thumb must not be in contact with any part of the revolver.

(d) The hand and fingers on the *butt* should maintain a firm but not excessive hold. The pressure of the thumb should balance that of the trigger finger. It is important to hold the revolver always in the same way. The correct hold should be practised until it is learnt by sense of touch.

(e) In raising the revolver to a target, the arm and wrist are kept straight but not rigid.

iii. Instructor demonstrates and explains how to make adjustments in holding—

To make vertical or lateral adjustment.—Withdraw revolver to the side and, grasping the *barrel* with the left hand, alter position of *butt* in the hand.

iv. Squad practises finding correct hold with right hand by grasping revolver lying flat in palm

of the left hand, and raising it to a mark. Instructor checks, each man raising revolver to instructor's eye.

v. Repeat with left hand.

vi. Instructor demonstrates drawing the revolver from the case and raising quickly to a mark.

vii. Squad practises. Instructor checks.

3. *Fitting of butts.*—The size of the *butt* of the revolver in relation to the firer's hand is of importance. During imitation, therefore, the instructor will ensure that butts fit correctly. If the correct hold can be taken without the tips of the second and third fingers pressing against the ball of the thumb, it is proof that the revolver fits the hand. There are two sizes of *stocks, side*, for the Webley Revolver.

59. *Firing instruction*

1. During instruction firing will be carried out for six shots at a time and not for an indefinite number of consecutive shots, in order to obviate the fatigue of the muscles which will lead to faulty *trigger* pressing, and also in order to inculcate the instinctive habit of counting the rounds fired.

2. In the early stages of training the non-master eye may be closed if desired, but men should be encouraged to fire with both eyes open from the very beginning.

3. *Aiming marks*—

i. *During firing instruction.*—The instructor's or another man's eye, kneeling position.

ii. *During range firing and on service.*—The centre of the waistline whenever possible, or a

selected mark two-thirds below the top of the target and central. At a crossing target aim will be taken at the front edge instead of at the centre.

4. The attention of the firer must be concentrated on the mark at the moment of firing, and not on the revolver.

5. The squeeze of the hand causing the mechanical release of the trigger must be applied so that the *hammer* falls without disturbing or checking the path of the revolver.

6. *Development of speed.*—This will be developed by adequate practice when once the repetition stage has been reached.

LESSON 4.—FIRING INSTRUCTION—SINGLE ACTION

1. *Preliminaries.*—Inspect revolvers and dummies. Extend squad. Interrogate on safety precautions.

2. *Sequence of Instruction.*

i. Object of lesson is to teach men how to fire the revolver single action with each hand.

ii. Give complete demonstration, naming phases—

Drawing revolver.

Loading.

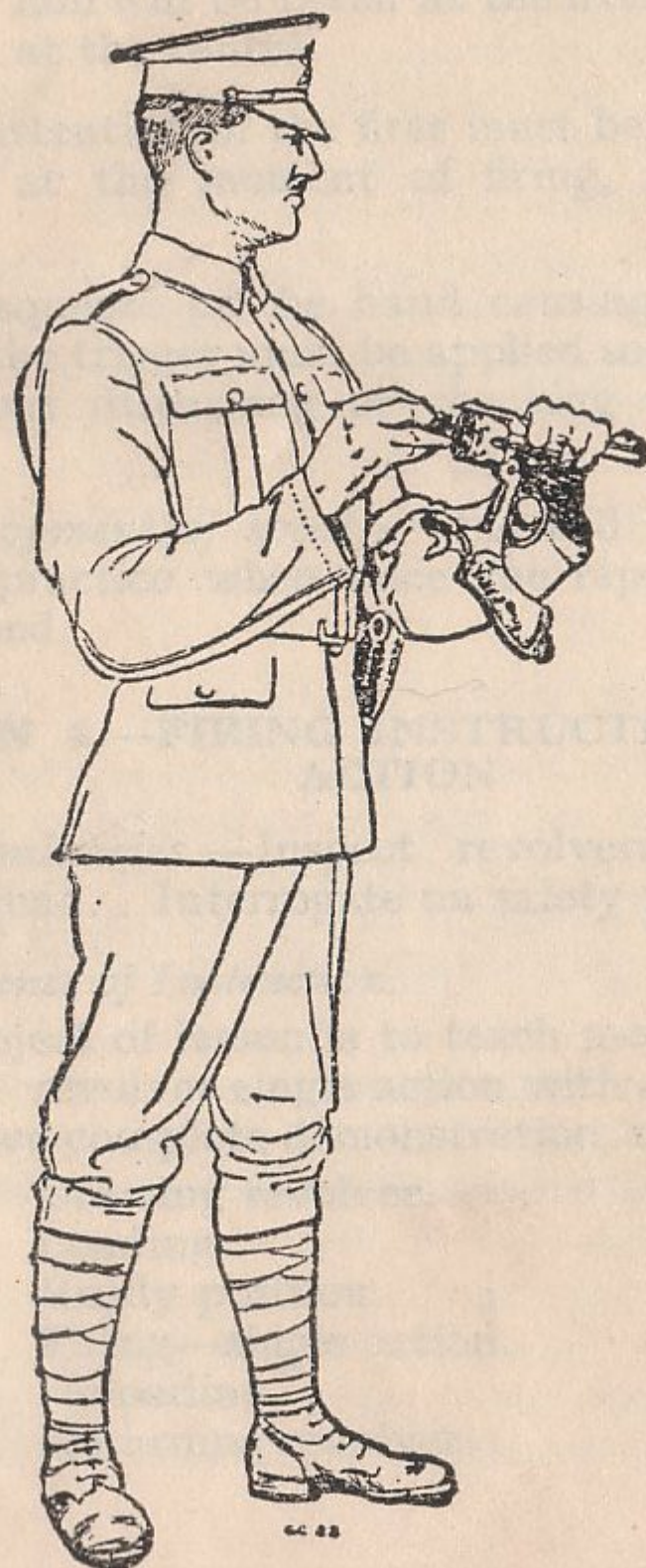
Ready position.

Firing—single action.

Unloading.

Returning revolver.





Stage I.—Loading and Unloading.

- i. *Rest position.*
- ii. Instructor demonstrates, giving detail. Squad imitates.

To Load.

"Six rounds—load."—Turn half right and carry off the left foot. Grasp the *barrel* with the left hand, knuckles up.

Point to note—

- (a) Thumb of left hand pressed against the *case guide* and *cylinder fluting*.

Open the revolver, lowering the *butt* from the *barrel* without allowing the *barrel* to move.

Take either one or two rounds, holding them by their bases between the thumb and tips of the first and second fingers, and insert them in the chambers.

Points to note—

- (b) First round placed in 10 o'clock chamber.
- (c) Continue to load in an anti-clockwise direction until all *chambers* are filled (Plate 55).

Close the revolver by bringing the *butt* up to the *barrel*.

Return to the "rest" position.

Throughout the action of loading, the revolver *barrel* must be kept pointing *downwards* at an angle of 45° from the body and towards the target.

To unload.

"Unload."

Adopt the *loading* position.

Open the revolver slightly.

Place the *butt* on the hip, open fully, and eject into the right hand.

Close the revolver; adopt the "rest" position.

The barrel must be kept pointing throughout in the direction of the target. When the *hammer* is cocked it will first be necessary to "ease springs" before unloading.

Whilst doing this, instructor emphasizes the *points to note*. General faults only checked.

iii. Men practise individually, instructor checking each man separately.

iv. Instructor assembles squad and, while it rests, gives the reasons for the *points to note*.

(a) To keep the *cylinder* from rotating.

(b) and (c) In the event of having to open fire before completing loading of all chambers, revolver will fire all rounds already loaded.

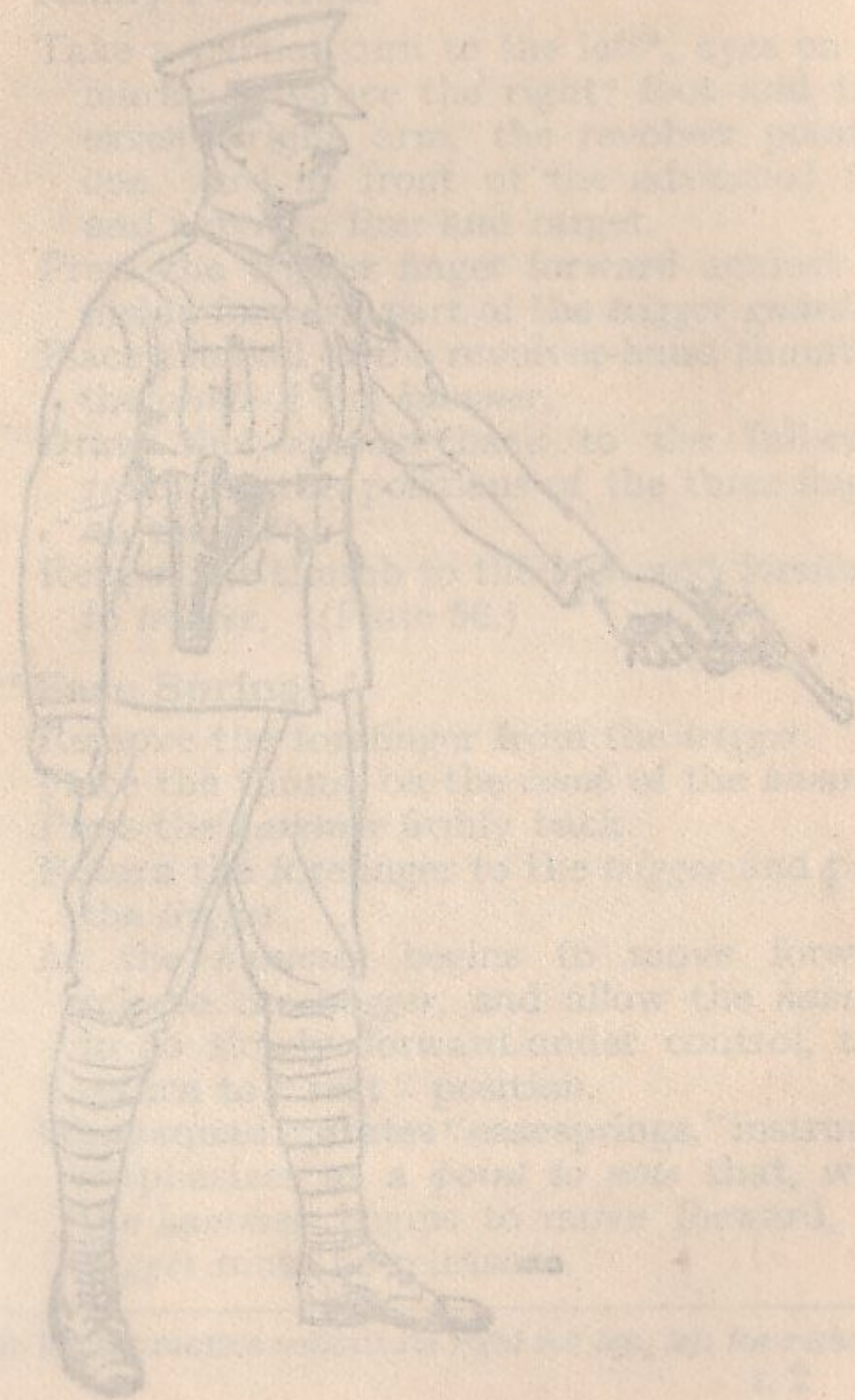
v. Instructor questions squad to ensure that these reasons have been understood.

vi. Further practice by word of command as necessary.

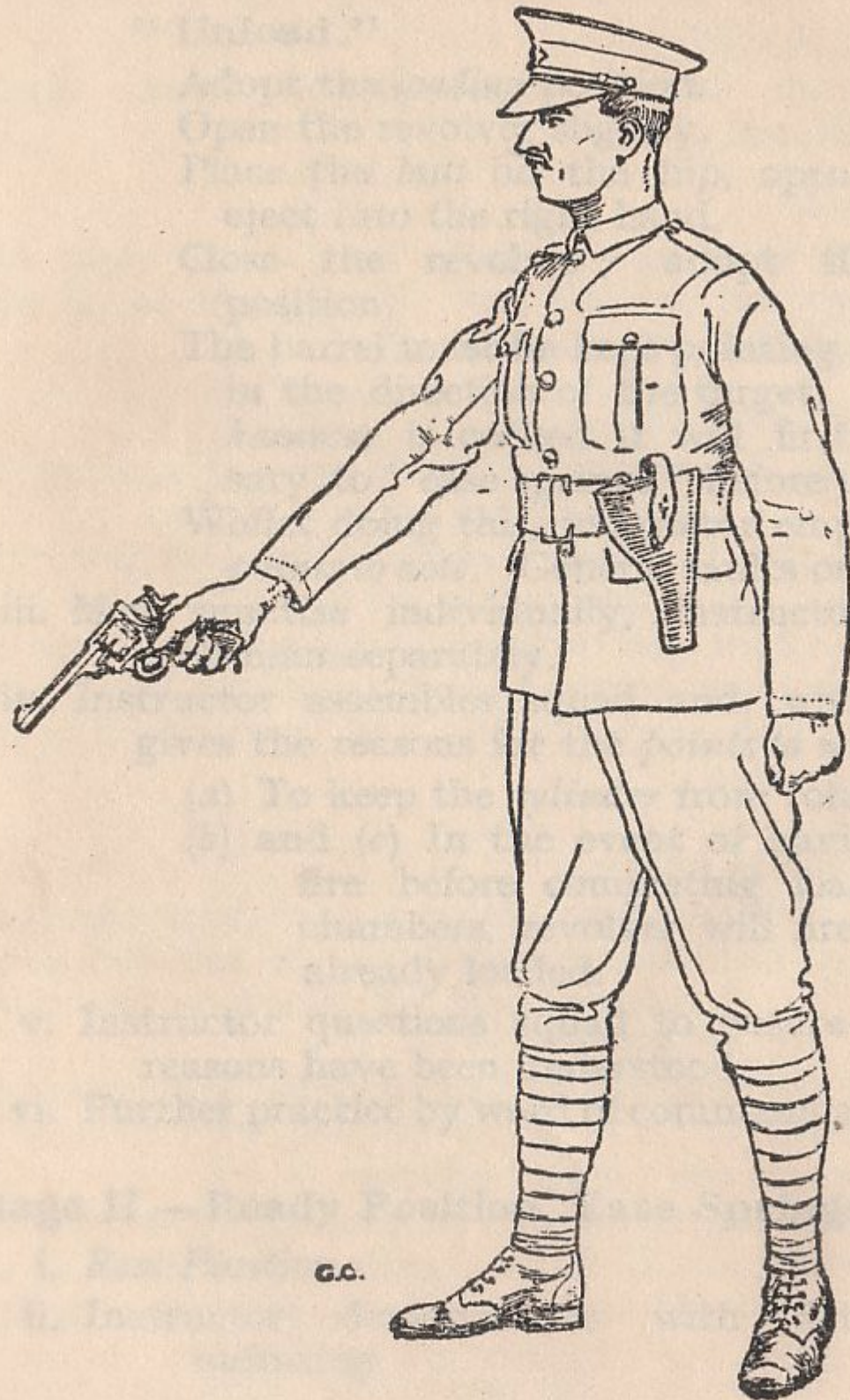
Stage II.—Ready Position, Ease Springs.

i. *Rest Position*.

ii. Instructor demonstrates with detail, squad imitating.



REVOLVER.—“READY” POSITION



“Ready Position.”

Take a partial turn to the left*, eyes on the mark: advance the right* foot and fully extend right arm, the revolver pointing one yard in front of the advanced foot and between firer and target.

Press the trigger finger forward against the inside forward part of the *trigger guard*.

Place the ball of the revolver-hand thumb on the *comb* of the *hammer*.

Draw the *hammer* back to the full-cock, retaining the positions of the three fingers on the *butt*.

Return the thumb to the *butt*, and forefinger to *trigger*. (Plate 56.)

“Ease Springs.”

Remove the forefinger from the *trigger*.

Place the thumb on the *comb* of the *hammer*.

Press the *hammer* firmly back.

Return the forefinger to the *trigger* and press the *trigger*.

As the *hammer* begins to move forward release the *trigger*, and allow the *hammer* to go slowly forward under control, then return to “rest” position.

While squad imitates “easesprings,” instructor emphasizes as a *point to note* that, when the *hammer* begins to move forward, the *trigger* must be released.

* For left-hand practice substitute *right* for *left*, *left* for *right*.

- iii. Men practise individually, instructor checking each man separately.
- iv. Instructor assembles squad and, while it rests, gives the reasons for the *point to note* in "ease springs," viz. :—If thumb slipped off *comb* of *hammer* while *trigger* was pressed, a round would be fired.
- v. Further practice by word of command as necessary.

Stage III.—Change Hands from Rest Position.

- i. *Rest Position.*
- ii. Instructor demonstrates with detail. Squad imitates.

To change hands.

"Change Hands."—Transfer the revolver to the other hand, taking care not to quit the revolver with the one hand before a correct grip has been obtained with the other.

Instructor explains that, if the command **"change hands"** is given when in the "ready" position, the revolver will first be brought to the "rest" position before changing.

- iii. Men practise individually. Instructor checks each man separately (including **Stage II** with left hand).
- iv. Further practice by word of command as necessary.

Stage IV.—Trigger Pressing.

- i. Instructor emphasizes the importance of trigger pressing. He explains that with the *hammer* cocked the *trigger* will be pressed by a squeeze of the whole hand, including a pressure of the fingers on the *butt* and a downward, forward and inward pressure of the thumb. There is no independent action by the first finger.
- ii. Instructor demonstrates from "rest" position emphasizing the following points :—
 - (a) Pressure of first finger towards the thumb.
 - (b) Downwards, forwards and inwards pressure of the thumb.
 - (c) Even squeeze of second, third and little fingers.
 - (d) The trigger finger must release the trigger fully after each pressure.
- iv. Instructor explains how squad will practise—
With revolver in "rest" position note a spot on the ground in direct alignment with eye and tip of *barrel*. Apply squeeze so that position of *barrel* remains undisturbed.
- v. Men practise individually with both right and left hands. Instructor checks each man separately.
- vi. While squad rests, instructor gives reasons for points emphasized during demonstration—
 - (a), (b) and (c) to ensure *hammer* falls without disturbing the alignment of the *barrel*.

(d) to avoid faulty manipulation which results in missfires.

vii. Further practice as necessary.

Stage V.—Firing—Single Action.

i. Instructor explains that, during this lesson, the aiming mark will be either the instructor's or another man's eye (*see para. 3, i*).

ii. Instructor, from the "ready" position, demonstrates firing single action, facing first to the right and then to the left so that the squad can see both sides of his hand and arm.

For the second demonstration, instructor adopts the "ready" position and repeats demonstration with detail—

"**Six rounds—fire.**"—With eyes fixed on the mark raise the revolver in the vertical plane, applying the squeeze of the hand so that the *hammer* falls at the same moment as the revolver intercepts the line of vision.

If firing consecutive shots, lower the revolver about one foot only immediately after firing a shot. The *hammer* will be cocked each time with the thumb as quickly as possible, using the motion of the revolver to assist in the cocking.

iii. Instructor now mentions *points to note*. For these, *see paras. 1, 2, 4 and 5*.

iv. Squad in two ranks, about four yards apart, practise in pairs as "Master and Pupil," using each hand. Instructor checks each man in turn.

v. Instructor assembles squad, and, while it rests, gives reasons for *points to note*:—

(a) Instinctive habit of counting rounds.

Avoid fatigue to muscles and consequent incorrect trigger release.

(b) Essential to practise what is needed in war. Must be quick shot by sense of direction only—both eyes open.

(c) In order to hit the target in the desired place, shooting by sense of direction necessitates keen concentration on a central spot in that area.

(d) No form of shooting can succeed unless the path of the revolver remains undisturbed at the moment of squeezing the trigger.

vi. Further practice as necessary. Instructor gives conditions of Tests of Elementary Training.

vii. When the necessary practice has been carried out, men will fire grouping practices. (*See Sec. 60.*)

LESSON 5.—FIRING—DOUBLE ACTION*

1. *Preliminaries*.—As for Single Action.

2. *Sequence of Instruction*.

i. Object of the lesson is to teach men how to fire the revolver double action with each hand.

ii. Instructor explains that trigger pressing is the

* When time and ranges are available, grouping practices (Sec. 19, and App. III, Vol. IV) will be fired before instruction in *Firing—Double Action*.

same as in "Single Action" except that the *hammer*, instead of being cocked by independent action of the thumb, is rotated by the pressure on the *trigger*.

- iii. Instructor in "rest" position demonstrates trigger pressing.
- iv. Men practise with each hand, instructor checking each man separately.
- v. Instructor demonstrates firing "Double Action" twice, as in the case of "Single Action."

For the second demonstration, instructor adopts "ready" position and repeats demonstration with detail—

"Six rounds—fire."—Since the *hammer* is cocked, the first shot will be fired as in "Single Action." During the next five shots the revolver will be kept in near alignment to the mark, pressure on the *trigger* being so regulated as to cause the *hammer* to fall each time the revolver intercepts the line of vision.

- vi. Instructor mentions that *points to note* are the same as in "Single Action" and interrogates the squad.
- vii. Squad practises in pairs as "Master and Pupil." Instructor checks each man in turn.
- viii. Further practice by squad as necessary. Instructor gives conditions of Tests of Elementary Training.

60. Grouping

1. The success or failure that will attend a man's first efforts in firing the revolver quickly by sense of direction will depend upon his confidence in his ability to hold the weapon correctly and to fire it without disturbing the alignment by incorrect trigger release.

2. For this purpose each man will fire the two grouping practices (App. III, Vol. IV) at a slow rate and with the use of *sights*. These practices should be fired on the range as a preliminary to further instruction as soon as he has reached a sufficient standard in **Lesson 4—Firing Instruction—Single Action**.

Before firing the grouping practices it will be necessary to show the man how to use the *sights* on the revolver. No definite lessons in aiming will be required, since the rules are similar to those for the rifle, and the *sights* will not be used again after these practices have been fired.

3. It is only when a man is firing a slow grouping practice, using the *sights* and taking deliberate aim for each shot, that an instructor can obtain accurate observation of the faults made.

4. When time and ranges are available these two grouping practices should be fired with an interval between them sufficient for the faults brought to light in the first practice to be corrected. The remainder of the Revolver Course (App. III, Vol. IV) will be fired after **Lesson 5—Firing Instruction—Double Action**, after men have received adequate empty revolver practice in the repetition stage of **Lessons 4 and 5**.

5. During firing, the instructor will watch for and check the following faults :—

- i. Snatching the *trigger*—causing shots to go low left, or, when firing with the left hand, low right.
- ii. Pressing out of line of *barrel*—causing shots to go to right or left.
- iii. Flinching and shutting the eyes whilst firing—causing scattered shooting.
- iv. Anticipating shock of discharge and pushing forward when firing—causing low, scattered shooting.
- v. Incorrect timing—causing an elongated group.

Faults i, ii, and v. should be watched for during all firing instruction.

61. Tests of elementary training.

1. *Tests*.—Before firing ball ammunition those undergoing instruction will be tested for proficiency in handling the empty revolver with each hand.

The tests should be carried out at a distance of four yards between firer and instructor, the mark being the instructor's eye, the instructor being in the kneeling position.

1st Test.—Single Action—six shots—one second a shot.

2nd Test.—Double Action—six shots in six seconds. Standard to pass.—Five to be correct.

2. In both cases the test will commence at the "ready" position. A latitude of aim will be allowed proportionate to the service test, *i.e.* if the instructor considers that the shot would have hit an area approxi-

mately the size of his face, the shot will be deemed to be correct.

62. The action of the mechanism.

1. The revolver can be fired by—

- i. Single action "cocking."
- ii. Double action "continuous."

2. *Cocking action*.

i. On drawing back the *hammer* the *mainspring* is compressed as the *hammer* rotates on its axis pin. During the motion the *bent* of the *hammer* bears against the *nose* of the *trigger* and rotates the *trigger*. When the *hammer* is withdrawn to its full extent the *nose* of the *trigger* clicks into the *bent* of the *hammer*. It is forced in by the *spring* of the *mainspring auxiliary*, which is connected by an *arm* to the *trigger*.

ii. The *hammer* is then cocked. On pressing the *trigger* the *nose* of the *trigger* is released from the *bent* of the *hammer*, the compressed *mainspring* drives the *hammer* forward, and the *hammer nose* hits the *cap* of the *cartridge*.

iii. On releasing the finger from the *trigger* after firing, the *auxiliary* operated by the *mainspring* comes into play. It pushes the lower part of the *hammer* forward a short distance and so withdraws the top half of the *hammer*, with the *hammer nose* clear of the *cap* of the *cartridge*. At the same time it pushes the *trigger* forward again.

3. *Rotation of cylinder.*—The *pawl* is pivoted to the *trigger*, so that when the *trigger* moves the *pawl* rises and falls. The *pawl* engages with the *teeth* of the *ratchet* and thus the upward movement of the *pawl* rotates the *cylinder*. The *pawl* drops as soon as the *trigger* is released, and engages behind the next *tooth* of the *ratchet*, ready to rotate the *cylinder* once more as soon as the *trigger* is pressed—in double action, or the *hammer* cocked—in single action. In single action, it has already been seen that the cocking of the *hammer* rotates the *trigger*.

A frequent cause of missfires is to hold the *trigger* instead of releasing it fully after each shot. In the former case the *pawl* is prevented from dropping sufficiently far to engage the next *tooth* of the *ratchet*, and the *nose* of the *trigger* is prevented from dropping sufficiently to engage the *hammer catch*.

4. *Action of pawl and cylinder stop when the hammer is cocked.* When the *hammer* is cocked the *trigger* has raised the *pawl* to its highest position and holds it engaged in the *ratchet*. Thus the *cylinder* cannot rotate backwards. Nor can it rotate forwards, because at this moment the *cylinder stop* has risen and engaged itself in one of the recesses in the circumference of the *cylinder*.

The *cylinder* is thus held stationary with the *chamber* in register with the *lead* of the *barrel*.

5. *Continuous action.*—This is the same as the *cocking action*, except that the *hammer* is rotated and the *mainspring* compressed, not by the *thumb* on the *hammer*, but by the pressure on the *trigger*.

The *nose* of the *trigger* bears behind the *hammer catch*

and so lifts the *hammer* until the *nose* of the *trigger* rises so high that it slips over the end of the *hammer catch* and allows the *mainspring* to carry the *hammer* forward and strike the *cartridge*. It will be noticed that the *hammer* does not travel back so far by the double action as in the single action. If the *mainspring* is weak, missfires may occur in double action shooting, even though the revolver fires regularly by single action.

63. Muscle exercise

1. This will be practised during the last few minutes of every instruction parade, but not be carried to the point of undue fatigue.

2. Sequence of Instruction.

- i. Instructor states that the exercise is designed to strengthen the holding muscles.
- ii. Gives complete demonstration.
- iii. Repeats demonstration with detail. Squad imitates.

Muscle Exercise—One.—Push out the arms in line with the shoulders, fingers wide apart, all muscles of the hand braced, knuckles uppermost.

Two.—Slowly turn the hands over, palms uppermost.

Three.—Slowly clench the fists, bracing all the muscles of the hands and arms.

Four.—Smartly pull the hands back until the wrists are below the shoulder.

Steady.—Adopt position of attention.

- iv. Squad practises by word of command.

TRAJECTORY

Height of trajectory (in feet) above the line of sight of the Rifle No. 1, Mark

Range in yards	200	300	400	500	600	700	800	900	1000	1100	1200	1300
300	0.7											
400	1.6	1.4										
500	2.6	2.9	2.0									
600	3.7	4.4	4.1	2.6								
700	4.9	6.2	6.6	5.8	3.6							
800	6.3	8.3	9.4	9.4	7.9	4.8						
900	7.9	10.7	12.6	13.3	12.6	10.3	6.2					
1000	9.7	13.4	16.2	17.8	18.0	16.5	13.2	7.8				
1100	11.7	16.5	20.3	22.9	24.1	23.7	21.3	17.3	10.5			
1200	14.0	19.9	24.8	28.5	30.9	31.7	30.7	27.5	21.9	12.5		
1300	16	24	30	35	38	40	40	38	34	27	16	
1400	19	28	35	41	46	50	52	51	48	41	31	18
1500	22	32	41	49	56	61	64	65	63	58	50	38
1600	26	38	49	59	67	73	78	81	81	78	71	61
1700	30	44	57	68	78	87	94	98	100	99	94	86
1800	34	50	65	79	90	101	110	117	121	122	120	113
1900	38	57	74	90	104	117	128	137	144	147	147	143
2000	43	64	84	102	119	135	149	160	169	175	177	176
2100	49	73	95	116	136	154	171	185	197	206	211	212
2200	55	82	108	132	155	176	196	213	228	240	248	252
2300	62	92	121	149	175	200	222	243	261	276	288	295
2400	69	103	135	167	197	225	252	276	298	316	331	342
2500	77	115	151	186	220	252	283	312	338	360	378	393
2600	86	128	169	208	246	283	318	351	381	408	430	450
2700	95	142	188	232	275	317	357	394	429	461	488	512
2800	105	158	209	259	307	354	399	442	482	519	552	582

NO

(a) The trajectories have been calculated, using the formula:—

 $h \text{ ft.} = 3X \tan (aR - aX)$ where

X = distance to the point at which the ordinate is required.

aR = the elevation for the whole range of R yards.

aX = the elevation for a range of X yards

TABLES

III, S.M.L.E. .303-inch, firing S.A.A. .303-inch Mark VII, M.V. 2440 F.S.

1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700

22													
47	27												
73	55	31											
102	86	64	36										
134	120	100	74	41									
170	158	141	117	86	48								
209	200	186	165	137	101	56							
251	246	235	217	192	159	117	65						
297	296	288	273	251	222	184	135	73					
348	350	346	334	316	290	256	211	153	82				
404	409	409	401	387	365	334	293	239	173	94			
465	474	478	475	464	446	419	382	333	271	196	107		
532	546	554	556	550	536	514	481	437	380	310	225	122	
606	626	639	645	645	637	620	592	552	501	436	356	259	142

TE

(b) The trajectories of the other patterns of rifle may be taken as practically identical with the above.

APPENDIX II

RANGE TABLE FOR ALL SHORT RIFLES FIRING S.A.A.
 .303-INCH MARK VII, WITH A MUZZLE VELOCITY OF
 2440 F.S.

Range	Angle of tangent elevation		Angle of descent	
	°	'	°	'
yards				
200	0	7	0	9
300	0	11	0	15
400	0	16	0	22
500	0	22	0	30
600	0	28	0	40
700	0	35	0	52
800	0	43	1	7
900	0	52	1	25
1000	1	2	1	46
1100	1	14	2	10
1200	1	27	2	38
1300	1	41	3	11
1400	1	57	3	49
1500	2	15	4	32
1600	2	35	5	20
1700	2	57	6	14
1800	3	21	7	14
1900	3	47	8	21
2000	4	16	9	36
2100	4	48	10	59
2200	5	23	12	31
2300	6	1	14	13
2400	6	42	16	6
2500	7	27	18	11
2600	8	16	20	30
2700	9	10	23	6
2800	10	10	26	3

The extreme range of the rifle may be taken as approximately 3,450 yards.

APPENDIX III

ELEVATION TABLE

The elevation table included in Aiming Instruction, **Lesson 3**, is sufficiently accurate for practical *service* shooting. It is based on the fact that 1 minute of elevation or depression gives a rise or drop on a vertical target of 1 inch at 100 yards and that, by moving the slide on the backsight from one graduation to another, extra elevation is given to the rifle as follows:—

Moving the slide from 200 to 300 ... adds 4 minutes.

300	„	400	...	„	5	„
400	„	500	...	„	6	„
500	„	600	...	„	6	„
600	„	700	...	„	7	„

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Packing, Shipping and Delivery of Furniture
and Effects, Baggage, Motor Cars, etc.,
to or from any country, at
inclusive prices*

Branch Offices at LIVERPOOL, MAN-
CHESTER, BIRMINGHAM, SHEFFIELD,
GLASGOW, HAVRE, BORDEAUX, MAR-
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"VICTOR" WARDROBE TRUNKS



"VICTOR"

TRUNKS ARE MADE
IN 60 DIFFERENT
QUALITIES AND DE-
SIGNS. THERE IS A
MODEL FOR EVERY
PURPOSE.

THE MODEL ILLUS-
TRATED HERE, No.
1220, IS AN IDEAL
MAN'S TRUNK. IT
IS LARGE ENOUGH
TO TAKE 8 SUITS
OR UNIFORMS AND
YET IS ONLY SMALL
IN SIZE, BEING
36" x 20" x 10½".

*"Victor" Luggage is obtainable at all good class
Stores and Trunks Shops and is
BRITISH MADE*





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